Chinese Learners

and

Computer Assisted Language Learning

A study of learning styles, learner attitudes and the effectiveness of CALL in Chinese higher education

by

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Declaration

I hereby declare that this thesis has been composed by myself, this research is my own work, and that this work has not been submitted for any other degree or professional qualification.

Signature:

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Abstract

E-learning has become a staple diet in many learners' academic lives in higher education institutions all around the world. This study did not follow the techno-centric standpoint and the comparative research design tradition in this field; instead, it focused on how learners' learning styles and attitudes interact with the effectiveness of E-learning implementation in the field of foreign language learning. The research was set in the author's home institution—a comprehensive university in mainland China, where the first- and second-year undergraduate students who were studying a compulsory English course were surveyed from 2003 to 2004. For this course, the College of Foreign Languages developed an online computer-assisted language learning (CALL) environment—NCE Online which was the basis of this investigation. The author's former colleagues helped organise the distribution and collection of 4 questionnaires and 9 groups of student interviews over one academic year. A total of 5258 participants completed the first questionnaire in 2003 while the numbers of participants who completed the other questions varied from around 200 to 700. To understand data from the learners in more depth, the language teachers and NCE Online developers were also surveyed with a questionnaire and individual interviews. The results showed that the learners had very positive attitudes towards the use of computer technologies in their study, and that there was an evident tendency to expect an increasing proportion of CALL elements as the students progressed in their English study. Despite these positive attitudes, what was equally clear was that there were still more students who preferred to have traditional classroom learning as their main learning mode, and they did not think of the E-learning materials available as more effective than the traditional ones. Meanwhile, their teachers' attitudes and the University's policies also played an important role in influencing learners' attitudes and actual behaviour toward the CALL system. In addition, the research revealed that Chinese learners have learning styles distinct from their peers in the west, which suggests that a CALL environment for Chinese learners should not follow blindly the much-advocated constructivist design model in the west. Reconsideration of both the ideals of foreign language teaching methodologies and E-learning pedagogies, which originated mainly in Europe and Northern America, needs to take place before the design of a CALL system for Chinese learners. The implications of this research were therefore discussed to begin just such a rethinking of CALL implementations in Chinese higher education.

Acronyms

CAI	Computer-Assisted Instruction, a term used widely in North America
CAL	Computer-Assisted Learning, the usual term in Britain
CALL	Computer-Assisted Language Learning
CE	College English
CLT	Communicative Language Teaching
CBI	Computer-Based Instruction
EFL	English as a Foreign Language
ESL	English as a Second Language
ICALL	Intelligent Computer-Assisted Language Learning
L1	First language, mother tongue
L2	Second language or foreign language
OLE	Online Learning Environment
SLA	Second Language Acquisition
TESOL	Teaching English to Speakers of Other Languages

Conventions

1. Short quotes from literature are embedded within paragraphs enclosed by quotation marks. Some direct quotes donot have page numbers as they were from online sources.
2. Long quotes from literature are in separate paragraphs, indented and single-spaced.
3. Quotes from research data are in separate paragraphs, indented, single-spaced and italicised.
4. Italicised words or phrases in the body text show emphasis. The ones within a quotation with a note of 'author's emphasis' indicate that the emphases are made by the author of this thesis; otherwise, the emphases are from their original writers.
5. Some relevant statistics that are not included in the body text of the thesis can be found in the appendices.
6. Some titles and headings contain acronyms (all explained in the previous 'Acronyms' section). This is due to space and formatting reasons; otherwise, plain language is used wherever appropriate.
7. When there are more than 3 authors for a citation, only the first author's name and '*et al.*' will be used even if this is the first appearance of this reference in the body text.
8. Quotes from the Chinese publications are translated into English from its Chinese originals.

Content

Chapter 1 Introduction

Prologue

Mother mouse was taking her son out for a walk. Suddenly a vicious cat appeared in front of them, threatening to tear them into pieces. Of course the son was very scared and trying to hide behind his mother. However, mother mouse did not show any fear at all. Instead, she confronted the cat, and then mimicked a dog's bark. The cat was very frightened and ran away. Mother mouse then turned around and said to her son, 'See, my dear, that's why it's very important to learn a foreign language!' (Chinese joke, anonymous source)

In the 1980s, it was estimated that about 60% of the world population was multilingual (Richards & Rodgers 1996). More recently, the importance of learning foreign languages has been further augmented by the dramatic spread of the Internet and the accompanying globalisation of every sector of our human society that has created an ever-increasing need for language learning worldwide (Tokuda & Chen 2004). The statistics show that an increasing number of people around the world now use English as a second or foreign language, thereby, for the first time in history, the number of second language speakers of a language has exceeded its native speakers (Warschauer 2000a). Teaching English to speakers of other languages (TESOL) has hence become one of the most important educational practices internationally.

'The language teaching profession has shown an interest in computers practically from the moment they started to appear', and computer power has grown incessantly at such a breathtaking pace that nowadays they have become even 'manageable for the ordinary foreign language teacher'(Wolff 1993, p.17). Especially, with the advent of the Internet and mushrooming of computer-assisted learning (CAL) development all around the world, computer-assisted language learning (CALL) has drawn the most attention in the field of second/foreign language education. Language learning is a complex social and cultural phenomenon, even more so when it involves new technologies that are capable of connecting the classroom to the world (Warschauer 2000c). Therefore, like all new things, it is naturally expected that CALL proponents demonstrate that it works or, more accurately, that newer is better, to justify the considerable expenditure of time, effort and money which IT requires (Burston 2003).

Between 1960 and 1990 over a thousand evaluative studies of E-learning were published across a range of disciplines, virtually all of which focused on broad comparisons of learning outcomes based on E-learning applications versus traditional instruction using a quantitative, quasi-experimental method research design (Burston 2003). The end of the 1980s marked the appearance of effectiveness studies specifically on CALL (ibid). Similarly, within the field of CALL (especially computer-mediated communication (CMC) based CALL), such comparative evaluative studies were clearly a focus in all research publications in 1999 (Levy 2000). Nevertheless, the actual effectiveness demonstrated in these studies is still controversial. Zhao's (2003) meta-analysis of nine rigorous experimental effectiveness-assessing studies conducted between 1997 and 2001 drew the conclusion that there is an

'overwhelmingly positive effect' of information and communication technologies (ICT) on almost all areas of language education. On the contrary, Burston's (2003) review found that:

> At best, especially with university level students, only small performance gains can be demonstrated, and their validity is subject to serious doubt. When all factors are taken into consideration, *comparative studies reveal no conclusive evidence of any positive advantages associated with the use of media in general or of computers in particular* (author's emphasis) (p.221).

The 'no significant difference' problem has plagued research on the effecitiveness of educational innovations for decades (Reeves 1986). Yet, Burston (2003) claims that it is equally important not to jump to the conclusion that IT is a waste of time, effort and money; since there is no evidence to justify that conclusion either, 'lack of significant difference can be taken to indicate that computer-based instructional paradigms are just as good as traditional classroom teaching'(p.221). In fact, he asserts that this lack of significant difference has much less to do with technology itself than with research designs of the treatment model. Moreover, since most ICT can be used in a variety of ways, some more effective than the others, it is inappropriate to overgeneralise the effectiveness (or lack of it) of one way of using the technology to the technology itself (Zhao 2003). Therefore, 'proving IT works' is often much more complex than many of those who seek such assurances realize (Burston 2003).

It has been recognised that research on CALL is very limited in terms of research objectives and methodologies. The prevalent comparative studies are said to be based on the false assumption that the media can be varied without changing instructional content or strategy (Hagler and Knowlton 1987), and provide 'little information to guide future development and use of an instructional treatment' (Reeves 1986, p.103). While admitting that CALL is more advantageous than or as effective as the traditional language classroom in a range of learning tasks, in the longer term, the more important aim is to discriminate where such is and where such is not the case (Allum 2002). To be more specific, instead of proving that CALL is better, we need to set our goal at adding value by ensuring principled integration of CALL and classroom in the most effective way which apportions those parts of the curriculum to CALL that can be more economically delivered through this means while leaving limited teacher time to the more needed areas (ibid). Moreover, what is often missed is the fact that the field involves the *interplay* of humans and technology and that the human side is especially significant (Hubbard 1996). Researchers have constantly been asking, 'Does CALL help to create an empowering environment for language learning?' (Chapelle,

Jamieson and Park 1996). However, seldom have advocates of 'empowering' CALL asked if students want, or will accept, such educational empowerment; nor have they acknowledged the fact that successful implementations of technology-supported empowerment may largely hinge on *student perceptions* (Saye 1997). Murray (1999) claims that his study, because the pre/post-test results consistently reflected the participants' perceptions, reinforced the belief that learners' perceptions and self-assessments are just as valid as quantitative comparisons. Hence, Burston (2003) proposes that, while giving due consideration to evaluating the effectiveness of CALL on the basis of learning outcomes, we need to take a broader view of the evaluation of ICT—one which goes beyond its defensive justification and a technocentric assessment of ICTs towards focusing on how ICT contributes to realizing our pedagogical goals and objectives. Such a human-oriented research goal calls for more attention to be paid to learners as well as teachers and the interplay between all the social entities that contribute to the effectiveness of CALL implementations.

As early as in 1982, Reece and Gable (1982) have argued that the introduction of computers into schools would be a waste of time and money if the users did not hold positive attitudes towards them. Lee, Hong and Ling (2002) claim that the stress and dissatisfaction about the technology itself may be the foremost detrimental factor to the success of computer-assisted learning. Jones *et al.* (1999) have also listed attitudes as one of the four indices for evaluating educational software. Hence, *learners'* attitudes and perceptions were the primary interests of this research. In addition, as this research was concerned with E-learning in *Chinese* higher education, *Chinese learners'* learning characteristics were considered particularly important in understanding their attitudes and perceptions about E-learning in general and CALL in particular. Computer-assisted learning, originated in the west, is mostly developed under a constructivist paradigm which requires learners to be proactive and critical, and emphasizes collaborative learning. All these features seem to be contradictory to the traditional image of Chinese learners. When such values are transferred into Chinese education, either through imported E-learning materials or home-developed software which are often modelled on the more sophisticated western products, how well can they fit in with Chinese students' learning orientations? The need for teachers and course designers to take learning styles into account is greater today than ever, due to the increased use of technology-aided instruction which has been argued to be able to offer new capabilities to reconstruct learning environments around specific learning styles (Buch and Bartley 2002; O'Connor 1998).

Therefore, this research aimed to find out characteristic Chinese learner styles and how they would interact with learners' attitudes, expectations and behaviour toward E-learning and CALL. In addition, the teachers and CALL developers from the university concerned were also investigated to provide supplementary information which may explain learners' attitudes and behaviour in more depth. This research may be of particular interest to educators who are conducting teaching or researching with E-learning and CALL targeted at learners in/from mainland China. It may help them to understand Chinese learners' learning context, style preferences and needs so as to enable further development of more effective CALL designs and implementations.

This thesis will start with a review of the existing literature concerning second/foreign language acquisition, TESOL methodologies, CALL development, learning styles and attitudes. Research methodology will then be explained, followed by analyses and discussions of the data from the research. The last part of the thesis consists of a summary of the research findings from which some implications were drawn, a reflection on this research's limitations and suggestions for future interested researchers.

Chapter 2 Literature Review

CALL, Learning Styles & Attitudes

Part I: SLA & TESOL

Hubbard (1996) claims that the development of a CALL product is determined by two elements: linguistic assumptions and learning assumptions. Therefore, this chapter will start with a brief account of second language acquisition theories and teaching methodologies, and then proceed to an overview of learning theories that are often associated with CALL. Finally, the development and research in the field of CALL will be reviewed.

Before this thesis proceeds further, there are some distinctions that need to be made clear between some of the most common terms in language education: 'first language' (L1), 'second language' (L2) and 'foreign language' (FL). *First language* refers unambiguously to a person's mother tongue, while the difference between *second* language and *foreign* language is often blurred. Strictly speaking, a second language refers to a language which is different from a person's mother tongue, but is learned in an environment where it is used as a major communicative language; otherwise, it is called a *foreign* language. Therefore, a learner learning English in China is learning it as a foreign language (EFL), and his/her English teacher is Teaching English to Speakers of Other Languages (TESOL). However, since research on Second Language Acquisition (SLA) has been based on both learners of *second* languages and *foreign* languages, in this thesis SLA will be used in a broad sense which refers to the acquisition of languages other than an individual's mother tongue, unless otherwise stated.

2.1. Language Acquisition & TESOL Methodology

Language teaching has always been dependent on the theoretical capacities of a variety of 'parent disciplines', such as linguistics, psychology, neuroscience and pedagogical methodology (Pienemann 1989, p.52). Therefore, since SLA was established as a particular area of inquiry in the late 1960s, there has been no shortage of theories to explain the mechanism of second/foreign language acquisition (Ellis 1995). Changes in theories about the nature of language and language learning throughout the history have reflected changes in the kind of proficiency learners need due to social, political and cultural development (Richards and Rodgers 1996). There are at least three views on the nature of language that have played important roles in some major upheavals in TESOL history (ibid):

- The structural view: language is a system of structurally related elements for the coding of meaning; language learning is seen to be the mastery of elements of this system in terms of phonological units, grammatical units, grammatical operations and lexical items.
- The functional view: language is a vehicle for the expression of functional meaning; it emphasizes the semantic and communicative dimension rather than merely the grammatical characteristics of language.
- The interactional view: language is a vehicle for the realization of interpersonal relations and for the performance of social transactions between individuals; it focuses on patterns of moves, acts, negotiation, and interaction found in conversational exchanges.

Different views on the nature of language have resulted in varied perceptions on how an L2 should be taught and learned, which in turn have resulted in a 'whirlwind of transitions' in TESOL methodologies (Pica 2000, p.2). It will be hereafter discussed how some of the most influential TESOL methodologies have evolved in the light of these three major views on language and language acquisition.

2.1.1. The Structural View

The structuralist SLA theorists put an emphasis on the structural elements of a foreign language, especially grammatical and lexical units. This tradition of foreign language teaching can be traced back for centuries when children were taught rigorous Latin grammar through rote learning of grammatical rules, study of translation and practice of writing sample sentences. This approach to foreign language teaching was the origin of what is called the Grammar-Translation Method which had dominated TESOL education until the 1940s. The main features of the Grammar-Translation Method are (Richards & Rodgers 1996):

- The goal of learning a foreign language is to read its literature or benefit from the intellectual development which results from the study.
- The method approaches the language first through detailed analysis of its grammar rules, and then applies this knowledge to tasks of translating sentences and texts into and out of the target language.
- Reading and writing are the major focus; little or no systematic attention is paid to speaking or listening.
- Accuracy is emphasized.
- The student's native language is the medium of instruction.
- The classroom learning is centred around the teacher's 'chalk & talk' and students learn by repetitive exercises.

Between the 1940s and 1950s, another method—the Audio-Lingual Method—was developed due to an urgent need for a large number of personnel able to speak many different languages fluently during World War II. The Audio-Lingual Method taught language through systematic oral drilling of pronunciation and basic sentence patterns. The linguists at that time believed that foreign language learning was basically a process of mechanical habit formation and that automatic production and comprehension of utterances can be learned by memorizing and performing oral pattern drills.

From grammar-translation to audio-lingual, even though the learning objective changed from reading and writing skills to oral skills, the underpinning learning and language perspectives in fact did not change much—the language structure was still the focus and students still learned by the means of 'drill & kill'. Until the mid-1960s, all the dominant SLA approaches were products of a combination of the structural view on language and the behaviourist view on learning (Fries 1945; Rivers 1964).

However, Chomsky (1965) pointed out that the phonological and syntactical knowledge of a language—*competence*—is distinct from the use of language in concrete situations—*performance*. Due to language's capacity to create infinite use out of finite means, Chomsky (1969, p.68) claimed that 'one does not learn the grammatical structure of a second language through 'explanation and instruction' beyond the most rudiments, for the simple reason that no one has enough explicit knowledge about this structure to provide explanation and instruction'. Although still focusing on the structure of language, he proposes that the minds of most normal people are born with an ability to acquire language—an LAD (language acquisition device) which is equipped with an innate system, known as Universal Grammar (UG), of principles, conditions and rules that are elements or properties that all human languages share as their 'common inheritance' (Cook 1989, p.1). Hence, the UG Theory emphasizes the role of grammar as a significant but *autonomous* phenomenon (Ellis 1995) which in turn entails that 'the best course of action for the teacher is the *laissez-faire* approach', i.e., to supply sufficient and graspable samples of language for LAD to make use of and then the learners' language learning capabilities will gradually take care of the rest (Cook 1989, p.172). This naturalist approach, although based on first-language (L1) research, has been adopted by many L2 theorists and practitioners since the 1960s (e.g., Krashen 1982; Terrell 1977).

2.1.2. The Functional View

The emphasis on language structure only were arguably appropriate for times when, for most learners, the most likely use of their foreign language knowledge would be reading some printed materials in that language and the chances for them to actually engage in conversations with native speakers of that language would be near zero. However, when time has evolved into an era 'where exposure to target languages is plentiful, pervasive, and authentic' (Skehan 2003, p.409), and opportunities of being immersed in the cultural or linguistic contexts of the target language have been increased by the mobility of living conditions and modern technologies, mastery of mere language structure was apparently no longer sufficient. By the late 1960s, in TESOL classrooms, more and more teachers have discovered that many intermediate and advanced students, after several years of formal study of language rules, still remain deficient in the ability to actually use the language (Allen and Widdowson 1979). Hence, Bialystok (1978) concludes that:

> To divorce language from its functional component is to reduce it to an arbitrary system of symbols and rules. Language must consist of a syntactic structure, a semantic reference, and a pragmatic intention (p.230).

Widdowson (1979b, p.119) considers it 'a radical mistake' to assume that a knowledge of how sentences are used in communication (in his term, the 'value' of a language) follows automatically from a knowledge of how sentences are composed as linguistic units (the 'signification' of a language). It is common knowledge that very often one linguistic form can fulfill a variety of communicative function and vice versa. It is impossible to consider grammatical form independently of function because form is determined by function (with a few exceptions such as the third-person singular –s) (Ellis 1995). Wilkins (1976; 1979a; 1979b) was among the first to propose a notional-functional syllabus for language teaching which 'forces one to consider the communicative value of everything that is taught' (1979a, p.90). Ironically, language has always been a *communicative tool*, despite the fact that applied linguists have only started to emphasize the importance of its function in language teaching and learning since the 1980s. Therefore, both the sociological and linguistic development prompted a change in the conception of language—from viewing it as merely structural units to functional entities that convey meaning and fulfil communicative needs.

SLA theorist Krashen has been the most influential in veering the focus of TESOL methodology from structure to *meaning*. On the one hand, Krashen has extended Chomsky's innatist stance which put pivotal importance on *acquisition* rather than

learning of a language. To Krashen (1985), the distinction between acquisition and learning is essential in understanding the mastering of an L2:

> 'Acquisition' is a subconscious process identical in all important ways to the process children utilize in acquiring their first language, while 'learning' is a conscious process that results in 'knowing about' language (p.1).

Since both Chomsky and Krashen assume certain autonomy of such acquisition processes, they consider explicit instruction about the language and behaviourist mechanical learning (such as the drills used in the Audio-Lingual Method) make the least contribution to language acquisition (Krashen 1980b). Also, both of them believe that learners 'construct' internal representations of a language which can be thought of as 'mental pictures of the target language' and the internal construction operates on language input without any direct dependence on the learner actually producing the language (Lightbown & Spada 1995, p.26).

On the other hand, Krashen (1981) departs from Chomsky by asserting that 'grammar study by itself is not the answer' (p.204), and acquisition is promoted by *meaningful* input—the Input Hypothesis. This famous hypothesis proposes that learners "acquire structure by understanding messages and not focusing on the form of input, by 'going for meaning'" (Krashen 1981, p.54). It is the central part of Krashen's (1985) SLA theory, the Monitor Model, which consists of five hypotheses: the Acquisition-Learning Hypothesis; the Natural Order Hypothesis; the Monitor Hypothesis; the Input Hypothesis; and the Affective Filter Hypothesis.

1) The Acquisition-Learning Hypothesis

Krashen distinguishes between acquisition and learning as two different processes in a learner's brain when s/he tries to master an L2. Although 'acquisition is slow and subtle while learning is often fast and obvious' (Krashen 1980a, p.177), Krashen believes that it is only acquired language that contributes to natural, fluent communication in the long run.

Because these two terms are often used interchangeably, it is decided that this thesis will use them interchangeably in the sense of mastering a language except in the parts which discuss the distinctions between them.

2) The Monitor Hypothesis

Krashen (1980a; 1985) contends that our internalised and spontaneous production of L2 comes from acquisition, not learning; and thus, conscious learning is available only as a monitor which edits and makes corrections on the output of the acquired system.

3) The Natural Order Hypothesis

This hypothesis states that we acquire the rules of language in a predictable order, some rules tending to come early and others late (Krashen 1985). There is overwhelming evidence supporting this hypothesis (e.g., Dulay and Burt 1977; Hatch and Wagner-Gough 1976; Schumann 1978). However, the order is not strictly invariant or linear for different learners, neither does it follow the order in which rules are taught in classes (Krashen 1985). Also, contrary to intuition, the rules that seem easiest to state (e.g., the rule for adding –s to third person singular verbs) are not necessarily the first to be acquired (Lightbown & Spada 1995). Nevertheless, despite the individual variations, we can still speak of 'a general tendency' of the acquisition order that occurs reliably (Hatch and Wagner-Gough 1976).

4) The Affective Filter Hypothesis

'Affect' refers to such psychological properties as attitudes, motives, needs, and emotional status. The 'affective filter' is 'a mental block that prevents acquirers from fully utilising the comprehensible input they receive for language acquisition' (Krashen 1985, p.3). The filter will be 'up' when the learner is stressed, self-conscious, tense, angry, or bored, and it will be 'down' when the learner is relaxed and motivated. According to Krashen (1982), when the affective filter is 'up', the input, even if understood, may not penetrate deeply. On the other hand, 'when the filter is 'down' and appropriate comprehensible input is presented (and comprehended), acquisition is inevitable' (Krashen 1985, p.4). In order to lower the affective filter, we need to provide interesting and motivating content, and avoid putting students on the defensive by excessive error corrections or demanding for premature performance when they are not 'ready'. This hypothesis is particularly attractive to EFL teachers as it appears to have direct implications for classroom practice, even though, as with other psychological concepts, one can not guarantee that the affective factors indeed *cause* the differences in acquisition (Lightbown & Spada 1995).

5) The Input Hypothesis

This hypothesis claims that humans acquire language in only one way—by understanding messages, or by receiving 'comprehensible input' which is formulated as i+1('i' stands for 'input'). Comprehensible input 'i+1' refers to language that contains some new element beyond the learner's current level of competence but that is nevertheless understood by the learner because of 'linguistic, paralinguistic, or situational cues, or world knowledge backup' (Swain 1985, p.245). In other words, 'if an acquirer is at stage i in acquisition of syntax, he can progress to i+1 by understanding input at that level of complexity' (Krashen 1988, p.103)

In summary, the key tenets of the Input Hypothesis are as follows (Krashen 1980a, p.171):

- The Input Hypothesis relates to acquisition, not learning.
- We acquire by understanding language that contains structure a bit beyond our current level of competence (i+1), with the help of extralinguistic information.
- Spoken fluency 'emerges'. It is not taught directly.
- When the acquirer indeed understands the message from the speaker, then i+1 is automatically provided. This process is termed as 'rough tuning' of input which is superior to 'finely tuned' syllabi.

Nevertheless, Lightbown and Spada (1995) point out that there are two obvious weaknesses of Krashen's model: it would be extremely difficult to detect the evidence of 'monitor' use and to demonstrate which system, acquisition or learning, is at work at any given moment. More importantly, Krashen's claim that comprehensible input delivered when the learner has a low affective filter is 'the *only* causative variable' in L2 acquisition and that there is no interface between conscious learning and subconscious acquisition (Krashen 1981, p.57) has been questioned by many applied linguists (e.g., Gregg 1984; McLaughlin 1978; White 1987). Krashen's innatist stance asserts that only acquisition contributes to fluency and the actual production of the language is not necessary for acquisition, whereas other SLA theorists believe that the process of obtaining comprehensible input and interaction is more crucial than the input itself.

2.1.3. The Interactionist View

Although researches have demonstrated that sufficient meaningful input is essential for successful language acquisition (e.g., Bialystok 1978; Rubin 1975; Seliger 1977; Snow and Hoefnagel-Höhle 1982), many SLA theorists contend that the question of *how* input

is made comprehensible is more important than the quantity of the input. Input can be most commonly made more understandable through simplification of its lexical or syntactical features. However, Leow's (1993) control-experiment study reveals that simplified input does not have a facilitating effect on learners' actual intake. White (1987) warns that simplified input may risk providing less than adequate input to the acquirer, and it is hence not as optimal as the input that comes from the interactional work in communicative activities in terms of sentence length and syntactic complexity (Long 1996). Studies of Long (1983a) and Varonis and Gass (1985) have shown that it is not input *per se* that is important to language acquisition but input that occurs in interaction where meaning is negotiated. Interaction which characterizes negotiation takes place when either one of the interlocutors signals with questions or comments that the other's preceding message has not been successfully conveyed (Gass and Torres 2005; Pica *et al.* 1996). Long (1983a; 1983b) hence proposes that interactions between native speakers (NS) and non-native speakers (NNS) are the *sine qua non* of second language acquisition. This is known as the Interaction Hypothesis, which asserts that the causative variable for acquisition is the process of obtaining comprehensible input (negotiation of meaning) rather than the input itself:

> *[N]egotiation for meaning*, and especially negotiation work that triggers *interactional* adjustments by the NS or more competent interlocutor, facilitates acquisition because it connects input, internal learner capacities, particularly selective attention, and output in productive ways (Long 1996, pp.451-452).

Interestingly, Varonis and Gass (1985) found that the amount of negotiation work increases from NS-NS conversations, to NS-NNS, and to NNS-NNS conversations. The maximised amount of interaction between NNS's is probably due to their comfort with the 'shared incompetence' (ibid, p.84) and the more frequent communication breakdown due to this incompetence. Therefore, it is claimed that learners might benefit more from engaging in target language conversation with their peers rather than native-speakers. Pica *et al.* (1996) also confirmed that learners' negotiation with other learners was not any more limited than that between learners and native speakers in sensitizing them to consciously modify their output. In addition, Gass and Torres' (2005) experimental study found that the group of learners exposed to input and interaction in combination obtained greater improvement than those in controlled conditions of either input only or interaction only. Also, their study suggested an ordering effect when grammar learning

is concerned: learners who received interaction followed by input showed the greater progress.

Since the late 1970s, the social advancement has substantially augmented human needs for genuine communication. Based on such functionalist and interactionist beliefs, the contemporary TESOL methodologies have put much emphasis on *interactional communication* to the purposes of language, the needs of learners, and the processes of language learning (Brumfit 1979; Pennington 1996; Widdowson 1978, 1979a). Thus the most substantive transition in EFL teaching methods took place and is known by many different names, e.g. communicative methodology, communicative language teaching (CLT) and communicative approach (CA) (Richards and Rodgers 1996). Although Wilkins' (1979b) notional syllabus emphasises the communicative value of language, Widdowson (1984) claims that it is teaching language *as* communication, but not *for* communication. He asserts that a redefinition of syllabus content in terms of functional and notional categories will not automatically trigger the use of language *for* communication, and what we need is a methodology that will engage the learner in language use as a dynamic problem-solving activity within the confines of the classroom. Hence, pedagogically, a communicative approach calls for much participation from learners; the class is centred around learners' activities rather than the lecturing of the teacher (Widdowson 1998).

In all, the key rationale underlying the current SLA education is that L2 competence is defined not only by grammatical knowledge but also by communicative uses (Pica 2000). The current CLT methodology in TESOL embodies the following beliefs about language and acquisition (Finocchiaro and Brumfit 1983; Richards and Rodgers 1996):

- Language is a system for the expression of meaning, thus meaning is paramount.
- The primary units of language are not merely its grammatical and structural features, but categories of functional and communicative meaning as exemplified in discourse.
- Since the primary function of language is for communicative purposes, comprehensible pronunciation and effective communication are sought.
- Contextualization is a basic premise.
- Drilling may occur, but peripherally.

CLT is characterized by procedures where learners are engaged in pair or group work for problem-solving tasks using the target language (Richards & Rodgers 1996). With the prevalence of the communicative focus, techniques which were historically linked to the Grammar-Translation or Audio-Lingual Method, e.g. dictation, recitation and drill, are

often placed in the background or even eliminated entirely in communicative classrooms (Pica 2000). Research has shown that the communicative approach is more effective than the other earlier methods in promoting students' fluency in speech and writing (Lightbown and Spada 1995).

Apart from these major trends, there were also some minor methods that had been shown conducive in certain TESOL practices, such as Total Physical Response (Asher 1969) and Counselling Learning (Curran 1972). What should be born in mind is that the latest methods are not necessarily the best in any absolute sense. What are now considered traditional methods were once the innovations of their times, whose creators believed that a particular set of techniques *they* recommended was the key to successful language teaching (Clarke 1982). All methods were the relatively effective ones in their own eras when views on general learning, functions of a foreign language, and teaching devices available were different from other times.

2.2. Rethinking the Communicative Methodology

Krashen's model and the communicative approach may be able to explain some aspects of the development of fluency and interactive confidence, but some theorists argue that they are not satisfactory for explaining how second language learners eventually master the grammatical or phonological systems of the target language.

2.2.1. Focus on Form

'The optimistic account of input-driven theories proved to be inconsistent with evidence' (Skehan 2003, p.392). For example, the immersion education in Canada provided learners with plentiful of input but the students still could not produce native-like utterances (Swain 1985). To internalise the new information about language, the learner needs to convert the input into 'intake' (Batstone 2002). For Krashen (1981), a proportion of the comprehensible input will automatically become intake. Nevertheless, there are many L2 researchers and teachers who doubt such complete reliance on implicitly acquired knowledge (e.g., Schmidt 1990; White 1987). Schmidt (1990) asserts that 'intake is that part of the input that the learner notices' (p.139). Conscious *noticing* is therefore claimed to be the necessary and sufficient condition for input to be converted into intake, and this requirement of conscious noticing is seen to apply equally to all aspects of language (grammatical form, phonology, lexicon and pragmatics).

Interestingly, Schimdt (ibid, p.144) has also pointed out that 'learners are not free to notice whatever and whenever they want and that a number of factors influence noticeability'. The two main constraints for noticing are the internal grammar—the Natural Order (White 1987), and the limited cognitive processing capacity (VanPatten 1990). There is a paradox inherent in the communicative approach: the new element of the communicative input, if it is to be learned, is by definition incomprehensible, hence the learner will need to circumvent the problem by going outside the target forms—by using context and our extra-linguistic information to help us understand (Krashen 1982). VanPatten (1990, VanPatten & Cadierno 1993) suggests that understanding the meaning and noticing the form of an input are two processes that compete against each other for the limited cognitive capacity of a human being. Wong (2001) agrees that at early stages of L2 acquisition, when attention is allocated to a grammatical form, detrimental effects for comprehension will result. Therefore, in communication learners will always focus on meaning first rather than structures, and as long as communication is successful, the 'incomprehensible' linguistic forms will be conveniently ignored. In addition, it is difficult for learners to recognize socio-linguistic rules without the teacher's or a native-speaker's intervention (Lyster 1994). Therefore, relying solely on communication may be detrimental for learners (especially advanced learners) in the long run, as they seldom receive feedback on their lexical and morphosyntactic imprecisions as long as they get their messages through (Pica 2000).

Hence, for learners to understand relationships between form and meaning in a discourse context, much of the input needs to be supplemented or greatly enhanced (Long 1996; Schmidt 1990; White *et al.* 1991). As a result, a currently prevalent view within SLA research is that providing learners with comprehensible input or interaction opportunities may not be enough, and some degree of concerns for the structural dimensions of language—focus-on-form (FOF)—is needed within communicative activities (Skehan 2003). The two most researched methods for raising learners' consciousness on language's structural dimensions are explicit instructions and error-specific feedback. Some theorists suggest that older learners, especially adults, will not reach their highest potential in SLA without explicit guidance (Lightbown & Spada 1995). For example, Sharwood Smith (1981) has observed that:

> [I]t is notoriously difficult to deny adult learners explicit information about the target language since their intellectual maturity as well as their previous teaching/learning experience makes them cry out for explanations. ... Teachers, and doubtless many learners as well, view explanations as shortcuts.

> It may be 'naturalistic' to learn languages in a purely intuitive manner but how long will it take to amass a sufficient amount of implicit knowledge and the appropriate skills for using it (p.159-160)?

Therefore, for adult learners who have a comparatively strong tendency for abstraction and metacognition, language teaching will inevitably have to recognize the importance of attention to and reflection on forms. Since the early 1970s, evidence has slowly accumulated to show that explicit instruction and corrective feedback can help raise the learner's consciousness of linguistic and peripheral-linguistic information (e.g., Doughty and Varela 1998; Lightbown and Spada 1990; Ritchie and Bhatia 1996; Rutherford and Sharwood Smith 1985; Schmidt 1990, 1992; Sharwood Smith 1981; Swain 1985; VanPatten and Cadierno 1993; VanPatten and Oikkenon 1996), and the most effective learning occurs when both meaningful communication and form are emphasized (Lightbown and Spada 1990; White *et al.* 1991). Furthermore, Pica (2000) claims that we can now 'identify fairly confidently which dimensions of an L2 can be learned through an emphasis on communication and which might respond better to an emphasis on instruction and correction' (p.8). Yet, the extent to which explanations and feedback can be turned into 'intake' again depends on the 'Natural Order' (Ellis 1989a; Ellis 1994; Hatch and Wagner-Gough 1976; Lightbown and Spada 1995). It is suggested that learners' errors reflected their hypotheses about the target language; thus instruction or corrective feedback cannot alter the path of language learning, although research has shown that they can accelerate learners' progress along the path, if provided at a time that is developmentally appropriate (Pica 2000).

In all, White (1987) asserts that we should not be afraid to occasionally provide input explicitly in the form of grammar teaching, correction, or other forms of emphasis on particular structures; 'at worst, it will be ignored and, at best, it may trigger change in the acquisition system, where such triggers are not present in ordinary input, or are so subtle that they are hard for the second-language learner to detect' (p.108). Thus, VanPatten and Oikkenon (1996) conclude that it may be desirable to offer two kinds of input in a classroom setting: 1) 'natural input' such as what Krashen advocates, which would be useful in developing general comprehension skills and discourse competence; and 2) 'structured input' to help learners make better form-meaning connection, which would be useful for the development of the grammatical system. Therefore, recently TESOL teachers have started to re-visit the traditional methods such as direct instruction,

corrective feedback, dictation and recitation tasks to facilitate 'noticing' or 'consciousness-raising'.

2.2.2. Group/Pair Work

Another trademark of the CLT is classroom participation patterns of small-group or pair work. Peer communication activities have been shown to be more effective in involving students in meaning negotiation and acquiring sociolinguistic knowledge than traditional teacher-fronted language lessons (Pica and Doughty 1985), and they are particularly conducive *in the short term* because there are prevalently more self-corrections and incorporation of each other's correct productions (Bruton and Samuda 1980; Pica *et al.* 1996). However, such classroom patterns are not without pitfalls. *In the long run*, 'a steady diet of group activities' may restrict the amount of grammatical and pronunciation input available to the classroom learner, and the input learners receive from peers often reinforces their own errors and misanalyses of the target language, 'leading perhaps to a stabilized nontarget variety' (Pica & Doughty 1985, p.132; Lightbown & Spade 1990). Therefore, the benefits of communicative group work may be more limited than had been previously assumed (Pica & Doughty 1985).

2.2.3. Methodological Transformation

Currently, TESOL methodology is undergoing yet another transition which is referred to as the 'post method condition' (Kumaravadivelu 1994). This transition is a result of two facts (Pica 2000, p.2):

1) There has been 'a broadening in the scope and diversity of English language use needed for participation in today's global community'.
2) A growing body of research is pointing out that L2 learners benefit from a variety of experiences ranging from direct instruction and correction to conversational communication. However, 'such experiences need to be offered, not randomly or eclectically, but rather, in a highly selective and principled way'.

It has been made acutely clear to more and more TESOL practitioners that no single method could possibly meet all learners' or all of *a* learner's needs. Such individual differences in learners and their needs imply that communicative methodology is defined more by the cultural continuity between teacher practice and learner expectations for involvement in their learning than by the static constructs of group work or oral engagement by which this method is popularly defined (Holliday 1997). Nor can any single method remain effective for learners for an extended period of time

(Kumaravadivelu 1994). Therefore, Kumaravadivelu (ibid) argues that teachers must seek *not* alternative methods, but alternatives to methods. In other words, what is emerging is an integration and reconceptualization of the older and more recent methods and an application of principled pragmatism in practice (Pica 2000; Kumaravadivelu 1994).

Summary of SLA & Methodology

In the light of the SLA research reviewed above, an ideal language learning process should proceed in a model similar to this figure:

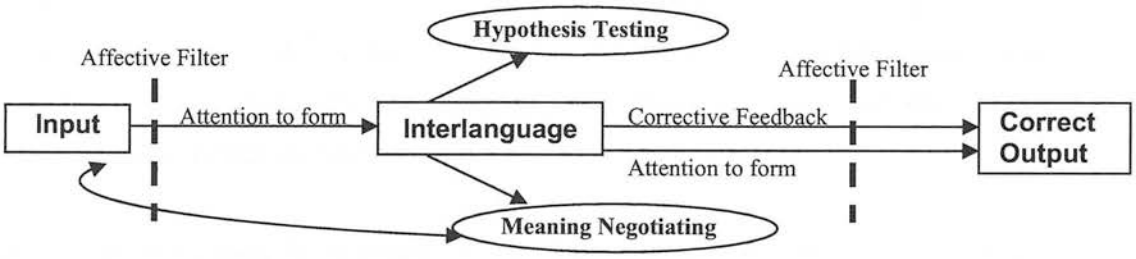

Figure 1: SLA Process Model

To be more specific, the key conditions for successful L2 acquisition have been identified as follows (Pennington 1996; Pica 2000):

- L2 input that is made meaningful and comprehensible.
- Communicative activities where learners interact and negotiate meaning
- Learners must selectively attend to the form of the input as well as its meaning.
- Learners must be in a favourable psychological state and willing to experiment and take risks (hypothesis testing)
- Learners must produce the L2, and be given feedback in order to modify their production to make it comprehensible.

In Part II of this chapter, how each element of Figure 1 can be facilitated by CALL will be explored.

Part II: CALL

After a review on SLA theories and teaching methodologies, this section will first look at general learning theories in relation to computer-assisted learning before proceeding to a review of computer-assisted language learning (CALL).

2.3. Learning Theories & E-learning

General learning theories have always been the backbone of the SLA pedagogy, and are inevitably inherited by ICT-facilitated language education. Two of the major learning paradigms, behaviourism and constructivism, have been the most influential in both traditional and computer-assisted second/foreign language education.

Behavioural psychology is interested in the study of changes in manifest behaviour as opposed to changes in mental states (Murphy 1997). To behaviourist educators, the human mind is like an empty vessel to be filled or as a mirror reflecting reality, and learning is conceived as a process of changing or conditioning observable behaviour through selective reinforcement of an individual's response to external events (stimuli) (ibid). Such learning processes rely on a transmission, instructionist approach which is largely passive, teacher-led and controlled. Therefore, the earlier E-learning products were characterized by static e-presentations of learning content and automated drills.

While behaviourism focuses on the observable external behaviour, constructivism puts emphasis on the cognitive process. Constructivists believe that knowledge can only be 'constructed' by learners themselves rather than 'poured' into their brains by the teacher. Constructivism contains several different conceptual and philosophical paradigms, of which cognitive constructivism and social constructivism are the two major ones. Cognitive constructivism focuses on the individual, believing that cognition occurs in the head of the individual and that learners make intellectual sense of the materials on their own; whereas social constructivists believe that cognitive development results from the merging of fundamentally biological lower mental functions with socially originated higher mental functions (Zapata 2004), in other words, knowledge is constructed in shared social endeavours.

In the past decade the pedagogical approaches embodied by learning technologies have shifted from a behavioural to a constructivist perspective (Littlejohn 2002). ICT are thought to be especially appropriate catalysts for such a transition as they can provide possibilities for learners to construct their own learning paths through their own, rather than the teacher's, controls over learning pace, sequence and content (Mitchell, Chen and Macredie 2005). The connectivity provided by ICT, in the form of synchronous and asynchronous computer-mediated communication tools, has opened up immeasurable potential for social learning activities for different groups of learners at different times and places. Social constructivism has gained more momentum than cognitive constructivism as it is more compatible with the 'knowledge society' pedagogies (Rüschoff 2001) which foster collaboration, lifelong learning, global learning and the acquisition of meta-skills as well as knowledge itself. However, more recently, Felix (2005) has noted that there is a trend towards a synthesis of the two constructivist paradigms in one E-learning environment, which promotes a belief that knowledge is constructed *individually* but mediated *socially*.

Constructivism has indeed become the synonym of E-learning (Canapero 2004; Felix 2005; Lai 1993). Especially, it is seen as an important methodological basis for innovations in foreign language learning as research has shown that mere training in structural and lexical knowledge will not result in real linguistic competence and fluency (e.g., Brandl 2002; Rüschoff 2001). 'Few would dispute the value of constructivist approaches in humanistic terms' when they address learners' needs and interests and engage them in authentic, real-life tasks (Felix 2005, p.88). However, a constructivist approach does not come without any potential problems, one of which being the individual variation issue. For instance, being given too much control, students who lack the skills for independent study may feel confused and find it difficult to decide their own learning paths (McDonald and Stevenson 1998). Moreover, for language teachers, CALL with such constructivist underpinnings requires much more time to organise and sustain collaborative project work than traditional teaching (Felix 2005). Often teachers tend to understand constructivism superficially and they can be hampered by their own learning experiences which are largely informed by an instructionist epistemology, hence, 'the implementation of constructivist methods is often patchy rather than holistic' (ibid, p.89). For example, Pearson (2001) found that, despite the increased use of ICT, the schooling system in Hong Kong is still largely dominated by an exam-driven curriculum and traditional teacher-centred pedagogy. Therefore, a constructivist approach to E-learning design is not necessarily desirable or most effective in certain educational contexts.

2.4. History of CALL

> It is impossible to appreciate the nature and significance of modern CALL without an understanding of its evolution, of the progressive realization of the computer's potential for linguistic purposes, and of the ways in which the computer has combined with other resources to create a viable learning environment (Ahmad *et al.* 1985, p.27).

CALL started with the Plato project at the University of Illinois in the 1960s, almost as early as the invention of the computer itself. The introduction of computers in language teaching and learning was accelerated ever since by the rapid development of IT industry. According to Jung's (2005a, p.7) bibliometric review, the CALL research and publications flourished between 1980 and 1990, and after that, there was a steep drop in the number of journal and book publications on CALL. A few researchers have also tried to describe the development of CALL with a more qualitative approach. One of the most cited is Warschauer's (2000b) three-phase classification. He has demarcated the decade 1970-1980 as the 'Structural CALL' phase, 1980-1990 as 'Communicative CALL', and '1990-now' as 'Integrative CALL'. The three phases are closely related to the shifts of L2 teaching methodologies over the decades (as reviewed in the previous part).

The birth of CALL is said to be based on the coalescence of three 'megatrends' in education in the 1950s and 1960s (Pennington 1996, p.5): the availability of computers to educational institutions; the behaviourist educational psychology; and audiolingualism. Not surprisingly, this Structural CALL period was characterized by computerized drill exercises which were programmed learning based on habit formation. CALL from the late 1960s to early 1970s was almost entirely geared towards teaching the written language and towards beginning students (Ahmad *et al.* 1985). From the late 1970s there emerged the communicative language teaching (CLT) methodology which promotes learning an L2 through authentic interaction and implicit grammar learning. Into the 21st century, SLA theories take on a more socio-cognitive perspective, emphasizing language acquisition through genuine, contextualised and meaningful social communications (Warschauer 2005). The advancement of computer hardware and software (especially, computer-mediated communications (CMC) technologies) has made it possible to integrate computers into SLA education and complement a content-based, socio-cognitive teaching paradigm.

However, Warschauer's three-phase CALL history model is heavily criticized by Bax (2003) who has questioned both its dates and its nomenclature. He points out that the historical

phases Warschauer and Healey (1998) and Warschauer (2000b) defined are far from corresponding to what CALL status really has been. He asserts that Warschauer's nomenclature is at best based on CALL educators' wish list rather than reality. While Bax agrees with the stage of 'Structural CALL' (or 'Behaviouristic CALL'), he finds the time periods of 'Communicative CALL' and 'Integrative CALL' do not render sufficient empirical research evidence to justify their titles. Bax (2003, p.18) claims that the CALL software during the 1980-1990 phase 'had very little to do with realistic communication at all', although CALLers did wish ICT could provide communicative environments for language acquisition purposes. Indeed, by the end of the 1980s, many educators felt that CALL was still only making marginal rather than central contributions to the language learning process (e.g., Kenning and Kenning 1990; Sanders and Kenner 1983). However, Jung (2005a) points out that in actual practice one can observe something that might be termed as 'off-computer' communicative CALL in the 1980s: often a background or context for a language activity was provided by a CALL program and the learners could then communicate with each other for this activity in the class. Jung (ibid) suggests that this phase should be called *post-behaviouristic* 'as it is an experimental phase with teachers trying to distil an essence of speaking out of software that was essentially deaf and dumb' (p.9). However, this off-computer communication stage was fundamentally changed with the advent of the Internet which makes a first appearance in 1993 in Jung's (2005b) database of CALL bibliography. The Internet has made it possible to apply strategies such as collaborative (e.g., Belz 2001) and tandem learning (e.g., Kötter 2003) more easily. Communication is 'no longer exclusively classroom-centred' where learners' interlanguage systems communicate with each other and it could even be said that 'the learning/acquisition barrier breaks down' (Jung 2005a, p.12). The year 1993 became the watershed between online and offline media which brought about a major shift in the pedagogical and research focus away from traditional drill-and-practice computer-aided instruction (CAI) toward multimedia, intelligent and interactive models (Zhao 2003).

Nevertheless, many researchers would probably agree with Bax's (2003) claim that we are still in the 'communicative CALL' phase as CALL has not been truly, fully integrated into our foreign language teaching practice yet. Like any other technology innovation, true integration of CALL should be characterized with the *normalisation* of the technology which means it becomes invisible (ibid, 2003), but clearly CALL has not reached that stage yet. Among the 6 stages before normalisation: Early adopters, Ignorance/scepticism, Try once, Try again, Fear/awe, and Normalising, Bax (ibid) reckons that many teachers and institutions

are still at the 'Fear/awe' and 'Normalising' stages. However, according to Coleman (2005), we may still be at the Ignorance stage in that CALL research and development still remains peripheral to the concerns of many language specialists. This is echoed by Skehan (2003, p.391): 'in the main, second language acquisition research and the applications of technology to language learning have remained relatively separate areas'. This marginalisation of CALL in L2 language teaching and research is vividly described by Coleman (2005, p.18) as such:

> Just as a sluice gate diverts part of a water course into a stream which drives a water-wheel to power a mill, so CALL research progresses separately from the mainstream of Second language Acquisition (SLA) in both teaching and research. The mill-race may be fast-moving and productive, but it can be ignored by those sedately fishing the mainstream.

The predicament that CALL has experienced in trying to integrate itself into the mainstream language classrooms can also be a result of the fact that CALL is 'not a grassroot movement' (Jung 2005a, p.9)[1], but rather a top-down movement in that in many cases it is implemented by institutions before teachers and learners are psychologically and technologically ready for it, not to mention pedagogically. After decades of exploration of CALL pedagogies, we are still a long way from the general aim of 'integrated CALL' (Bax 2003). Furthermore, it is almost impossible to demarcate 'clear-cut phases or watertight periods in CALL' (Jung 2005a). These three types of CALL do not mutually exclude each other in reality, e.g., we still have behaviouristic CALL in some areas for certain purposes. This, in part, reflects the 'post-method condition' of the SLA pedagogy in general where language teachers are endeavouring to make principled use of alternatives to methods.

If we are not in the Integrative CALL era yet, then integration and normalisation is obviously where CALL should be heading for. Coleman (2005, p.20) calls for an effort to:

> make ICT part of the very fabric of the discipline of SLA, ... to make it impossible for experts to continue to cold-shoulder CALL. It should become unthinkable to write any research-based book on language learning without taking into account the role of ICT.

However, ironically, to achieve this goal of full integration, CALL practitioners would be aiming at their own extinction (Bax 2003), because when a technology becomes normalised,

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[1] Jung (2005) claims CALL is not a grassroot movement because it trickles down from tertiary education into secondary schools, opposite to what we saw in the 60s when language labs trickled up into university teaching.

it will not be recognized by either teachers or students any more. Nevertheless, when learners are no longer aware of the technology which overcomes the barrier between foreign language *acquisition* and *learning*, Jung (2005a, p.13) enthuses, 'Is it not what we foreign-language teachers have always wanted? Is there not plenty of reason to be overjoyed?' even at the cost of our own extinction.

2.5. CALL for TESOL

It has been argued that computer capabilities promise to improve both the quality and the extent of the learning experience in general (Ådnanes and Rønning 1998). Second/foreign language educators have been no slower in jumping onto this 'bandwagon' of E-learning than their more science-oriented peers. As Jones (2001) has observed:

> ...the truth is that today no language centre in the developed world feels that it can do without high technology in the form of computers. Students expect to find computers among the facilities available to them, while teachers and administrators are aware that the field of computer-assisted language learning is gathering prestige, and that they must keep up with the trend (p.360).

This section is naturally going to discuss how ICT can aid ESL/EFL teaching and learning in light of the language acquisition theories and TESOL methodologies.

2.5.1. Flexibility and Individualization

As CALL is a specialized area of E-learning, it naturally has the implications that E-learning has for education in general. Crawford and Kevill (1999, p.5-1) claim that computer-based learning emancipates students in the following ways:

> [It] can increase the consistency, reliability and quality of student learning ... It allows the students to work at the pace, time and location of their own choosing, with immediate feedback and evaluation of their learning outcomes. These factors optimise learning conditions and increase the flexibility of the learning experience.

The flexibility and individualization in E-learning have proved to be more beneficial than their traditional counterparts (e.g., Dahlqvist and Ramberg 1999). In L2 learning, individual factors such as aptitude, motivation, age, L1, learning styles, are known to play a crucial part (Hubbard 1996), and many of them may be accommodated equally by the flexibility of E-learning that reduces an instructor's subjective control to the minimum (Skehan 1989).

Wilson and Whitelock (1997) claim that E-learning can meet learners' cognitive needs and requirements in three dimensions: social, motivational and knowledge. The flexibility of E-learning, which can foster an autonomous approach to study, also helps with the development of learners' intrinsic motivation and belief that they can succeed (Esch and Zähner 2000). For instance, Heift (2005) developed an online German learning system with an integrated learner report interface which could create a profile of each learner's progress and performance that s/he could inspect and manipulate. Heift (ibid) reported that, not only did students review their learner profiles frequently, but also they utilized and were influenced by the profile information (e.g., 70% of them repeated exercises after having inspected their profiles).

CALL also has many advantages at pushing learners to take more risks in both obtaining more input and producing more output (Pennington 1996). The privacy of learning with a computer enables students to have as many 'try-and-error' occasions as necessary without feeling embarrassed. The lack of social cues in CMC also encourages learners to test out their language hypotheses in a more uninhibited manner. For instance, Hoffman (1996) noted that network-based communication offered a real audience for English among Chinese students who would not ordinarily speak the foreign language with each other.

According to Pennington (1996), the computer is also a catalyst for a more constructivist and autonomous learning cycle:

> The computer expands the learner's 'zone of proximal development', to a virtually infinite degree, as the machine partners and supplements the learner's knowledge and capabilities, while also adding other partners and forms of supplementation to assist in building information and skills. In this way, the computer 'sparks' the learning process, gives direction for it, and eventually helps the learner to gain independence in acquiring the skills modelled and trained by computer means (p.10).

Such a learning cycle can activate cognitive and metacognitive learning strategies which force learners to concentrate and reflect on their learning processes rather than the ultimate presentation of objective knowledge (Esch and Zähner 2000; Heift 2005). Chamot and O'Malley (1994) suggest that explicit metacognitive knowledge about one's own learning and strategies and about the demands of task is a major determiner of language learning effectiveness. The computer, in many ways, is able to encourage and

help learners externalize their thinking and reasoning processes, making them more transparent and explicit. For example, learning programs that allow the learner to view his/her own learner model (learning process) have been found to promote self-assessment which is one of the necessary metacognitive skills for effective learning (e.g., Kutay and Ho 2003; Mitrovic and Martin 2002; Morales, Pain and Conlon 1999; Zapata-Rivera and Greer 2002). In addition, over the past decade, an increasing number of researchers have studied how natural language processing (NLP) systems can produce error-contingent and annotated feedback to learners' language input into the systems and help raise their linguistic awareness of the target language (e.g., Ahmed 2002; Chen, Tokuda and Hou 2005; Krüger and Hamilton 1997; Pujolà 2001). For instance, in an intelligent tutoring system with NLP, Heift (2001) found that their students read and attended to the metalinguistic feedback of 79.5% of the sentences they had inputted; also, as iterations increased students paid more attention to the feedback messages. The metacognition developed, Cartes-Enriquez, Rodriguez and Letelier (2004) assert, will in turn help learners plan their subsequent learning and monitor and evaluate the procedures and strategies they apply.

Learning strategies that promote autonomous learning, risk-taking and metacognitive reflection have always been seen by SLA theorists as very conducive for language acquisition. Nevertheless, not all learners are aware of the benefits of metacognitive skills. Most language learners just want to 'get on with it, to see rapid results' and they may need some convincing that effective learning is not just about following instructions from the teacher or textbook and doing drills (Hurd, Beaven and Ortega 2001, p.343).

For teachers, the advantages of computer-based systems are significant, too. In his research into Internet-based 'third generation distance learning', Katz (2002) points out that E-learning allows teachers to monitor the overall progress of students as well as permitting tutors to modify, reinforce and even model educational processes. Debski (1997) claims that the currently prevalent communicative approach has been rejuvenated and fully articulated by the instrumental use of computer technology in language learning:

> Students are now able to extend their thought processes beyond their immediate learning environments and perform language acts in a virtual space enabled by technology, thereby vitalizing certain assumptions about language learning theory that formerly remained more speculative.

Apart from the general advantages mentioned above, CALL still has much more potential for more specific SLA objectives. The following section will examine ICT uses in L2 education at a more micro level.

2.5.2. SLA Key Variables

When computers were still a relatively novel phenomenon in language education, research was often geared towards comparing students' attainment between computer-based activities and other kinds of activities (Chapelle *et al.* 1996). Whereas, language teachers now are more interested in 'how', instead of 'whether', CALL or some common software applications can aid language acquisition (Brett 1995). According to the review on SLA theories in Part I of this chapter, the most crucial variables that influence the effectiveness of L2 acquisition are: comprehensible input, conscious noticing, affective filter, interactional output, and instructional feedback. Hence, how CALL can fit in with these variables will be reviewed hereafter.

Input

Comprehensible input has been recognized as a fundamental basis for L2 acquisition. Both the quantity and quality of input can be enhanced by ICT in many forms.

◈ Authentic Resources

The Web and the ever-increasing hardware capacity have established the unsurpassable status of the computer as the inexhaustible source of authentic information, knowledge and learning activities in the target language (especially English) at learners' fingertips, and as the enormous storage warehouse of individually chosen resources. For TESOL purposes, the raw materials available on the Internet, such as online newspapers, digitalized radio and TV programs, databases, text archives and corpora, and specialised research collections and presentations, are offering possibilities undreamt of by earlier generations of English learners (Burnage 2001). Grandjean-Levy (1997) claims that the fact that technologies bring students closer to the reality of another language and another culture is very motivating, which in turn brings about more willingness to search, to discover and to learn (also see Cobb and Stevens 1996; Felix 2001). However, we also have to bear in mind that making large and varied amounts of input available is no guarantee for automatically promoting deep processing; therefore, we need to do much evaluation and sifting before we turn our students to 'cruise the information highway' (Cobb and Stevens 1996, p.117).

- **Comprehensibility**

However, most of the authentic resources provided by technologies are not easily comprehensible as they are not produced for language learning purposes. Fortunately, there are many ways in which ICT can help to make such input more comprehensible and meaningful.

Annotation is the most common technique to aid comprehension. The hypertext technology has made annotations available instantly to learners' commands by mouse movements. ICT's multimedia capacity can further enhance annotations with visual or audio effects. Sakar and Ercetin's (2005) reported that their intermediate-level English learners, when doing reading tasks, preferred visual annotations significantly more than textual and audio annotations. Hew and Ohki's (2001) experiment with animated graphical annotation demonstrated that it improved their students' listening skills. Not only can visualization enhance learners' comprehension of authentic linguistic input and better productive use of language (e.g., Borras and Lafayette 1994), but also the appeal factor of multimedia visual messages is important in sustaining learners' interest and retention of the information (e.g., Brett 1995; Hsu, Chappelle and Thompson 1993).

E-dictionaries and e-glossaries are efficient tools which are widely available in stand-alone CD-ROM packages or online, e.g., the Cambridge dictionaries. The sophisticated e-dictionaries nowadays can offer hypermedia-based (in text, audio, picture or video) explanations and pronunciations of any word on a computer screen, and can even capture it and add it to the learner's personal vocabulary list. Research on such referencing facilities almost unanimously reported learners' very positive reaction, suggesting that learners tended to consult the hyperdictionary more frequently than traditional dictionaries (e.g., Aust, Kelly and Roby 1993), and they felt that not only could they understand linguistic components and context better but also they could remember better because of the 'double information (pictures and text together)' (Sakar and Ercetin 2005, p.36).

Noticing

With regards to helping learners notice certain linguistic features, CALL is apparently much more versatile than the traditional learning media. ICT can enable noticing in a variety of audio and visualisation techniques, such as different font sizes and styles,

colours, subtitling, hyperlinks indicating additional information, audio instructions accompanying texts, and animated pop-ups. Another ICT utility, concordancing, has recently attracted great attention as a power tool to sensitize learners with both lexical and grammatical features. Computers and the Web provide us with enormous corpora of authentic linguistic instances, and concordancing software makes it possible to gather and present samples of authentic language uses instantly.

When it comes to the acceptability of grammatical or vocabulary usage, native-speaker intuition and judgements are notoriously unreliable (Stubbs 1983). Non-native speakers are even less able to trust their intuitions and are unlikely to have easy access to native speaker judgments. In addition, it is probably equally important for learners to acquire sociolinguistic as well as linguistic knowledge. In traditional TESOL classrooms, students often do not have sufficient access to the norms of native speakers as even native-speaker teachers are often reluctant to teach sociolinguistic dimensions of English since sociolinguistic rules are generally so complex and difficult that a good deal of explanations and examples are needed (Pica 2000). Therefore, Chapelle *et al.* (1996) suggest that unconfident non-natives as well as native speakers can thus turn to a concordancer to provide them with reliable, objective data on grammatical and lexical usage. Concordancers have made it possible to create 'an invaluable interplay between learning the language and learning *about* the language (author's emphasis)' (Ahmad *et al.* 1985, p.126).

Feedback

Immediate and individualized learner feedback has long been recognised as a significant advantage of CALL over the more traditional language instructions (Heift 2001). CALL is capable of providing instant machine-generated feedback to the learner as well as mediating feedback from other learners or the tutor. Types of feedback that CALL can offer range from those as simple as 'Wrong, try again' model to elaborate Natural Language Processing (NLP) analyses that try to imitate the comprehensive, human-speaker-like diagnosis of language deficiencies. One of the popular areas in CALL at present has been the development of Intelligent Computer-Assisted Language Learning (ICALL) which features error-specific and individualized feedback using NLP technology. ICALL has been mainly implemented in the areas of pronunciation training (this aspect will be discussed in the section on 'Output') and grammar acquisition.

Many studies have found that NLP-based intelligent feedback which explains the source of an error is more efficient and effective for a wide range of learners than traditional feedback (e.g., Chen *et al.* 2005; Tokuda and Chen 2004).

Affective Filter

There are many ways in which CALL may help lower learners' affective filter, and thus help them turn more input into intake for acquisition.

First of all, it is well-known that computer technologies are able to provide much greater flexibility than traditional classroom learning in terms of study time, place, pace and content, which means learners may be physically and psychologically more ready and motivated to learn and absorb the knowledge presented. For example, it can offer slow learners and fast learners remedial and extension exercises respectively (Ahmad *et al.* 1985). Being machines, computers are also well-known for their objectiveness. CALL treats every learner equally in terms of instruction and assessment. This may boost learners' confidence and motivation.

Secondly, the privacy accompanying learning through CALL is also a factor in lowering anxiety levels (Ahmad *et al.* 1985). It is well known that it is often a very embarrassing task for some learners (especially very introverted or accuracy-oriented students) to produce target language in class only to find they have made mistakes. However, with CALL, they can make mistakes and try as many times as they want without feeling embarrassed. Neither do they need to reveal their identities if they are communicating with others online. Learning may therefore be encouraged through increased confidence.

Lastly, IT technologies have already blurred many of the social boundaries between different groups of people. People from all social strata have become more accessible with computer-mediated communication. It is found that learners often attach properties such as intimacy/warmth, collegiality, better social relations, greater interactivity, and connection, to those communication tools incorporated in many CALL systems (Coghlan 2004). Therefore, learners may feel more comfortable or encouraged to obtain learning support through CMC from sources that are at higher academic levels or authoritative positions with which they were once deterred to associate.

Output

Here output refers to production in the target language for non-interactional purposes, which can be in both text and voice modes. The interaction-based output will be discussed in the following section of 'Interaction'.

◈ Text-Based Output

Apart from the text writing tools embedded in specially designed language learning systems, many non-specialist programs are equally effective if the tutor is imaginative enough, such as Microsoft Word and Powerpoint for presentation, or Adobe products for desktop publishing. Some newly emerged online publishing technologies have been quickly explored by many innovative ESL/EFL teachers around the world, too. Among them, the most promising are blogs and wikis. Blogs, or Web logs, are essentially online journals which can be highly personal, while wiki sites are open for editing by anyone or selected members (but the changes are logged along with the ID of the modifier) and hence fundamentally collaborative(Godwin-Jones 2003). Learners can create a blog or wiki website with no knowledge of HTML (hypertext mark-up language—the programming language for creating webpages). On the one hand, language learners can keep updating a personal blog as an electronic portfolio, showing his/her learning development over time. On the other hand, wiki sites can be created for a certain group of learners and provide them with an excellent collaborative platform where they all can contribute something to completing projects or building a knowledgebase. Self-publishing encourages ownership and responsibility on the part of learners who may be more thoughtful if they know they are writing for a real audience that may be beyond classmates (Godwin-Jones 2003).

◈ Spoken Output

Such output includes utterances of phonetics, single words, sentences, or voice reading of texts. The computer is a very useful tool for helping learners produce 'comprehensible output' in oral forms in that it is an excellent recorder, an accurate reproducer of the oral output, and an efficient digital data analyzer. Much attention has recently been paid to some new voice tools. For example, audioblogs, the audio version of weblogs (Coghlan 2004). A very useful form of audioblogging is called 'podcasting' with which one can record and 'broadcast' audio/video files online. Users can set up podcasting sites with their own oral productions and other users can subscribe to them using a 'news aggregator' program (RSS) which can be set up to monitor the site and download the new files automatically at a scheduled time (Godwin-Jones 2005). Many EFL teachers have been experimenting with this technology in order to encourage

students to produce oral output online in different activities which can be in turn accessed and assessed by the tutor and other learners (information from email exchanges on mailing list NETEACH[2] in May and June 2005).

However, the most documented ICT use for improving spoken output is the voice/speech recognition technology[3]. A good number of software packages have been developed since 1993 to apply speech recognition algorithms to evaluate oral production in EFL teaching (e.g., Goh 1993; Hew and Ohki 2001; Hincks 2003; Menzel *et al.* 2001; Neri *et al.* 2002; Neumeyer *et al.* 2000). L2 speakers have been observed to make serious efforts when using such software in order to improve articulation of their utterances, so it can be used as a corrective tool (Myers 2000). However, most of the current voice recognition devices are still not able to take into account the very great variations in people's acoustic characteristics which are related to factors such as gender, age and regional dialect. Coniam's (1999) study hence concludes that voice recognition technology is still at an early stage of development in terms of accuracy and single-speaker dependency. The computerised pronunciation assessment up to date is still largely inaccurate (e.g., Neumeyer *et al.* 2000).

Interaction

The Internet and numerous local area networks around the world have brought us various forms of computer-mediated communication (CMC): asynchronous (e.g. Email, forum, bulletin board, web blog, and mailing list); and synchronous (e.g. chatroom, instant messenger, and video conferencing). With much emphasis being placed on *interaction* in TESOL classrooms nowadays, CALL certainly seems to have plenty to offer.

Grandjean-Levy (1997) saw her students were very motivated in communicating with native French correspondents through email exchange programs. Despite the fact that some FL teachers may 'cringe at the idea of some not-quite-perfect foreign language

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[2] The web address of NETEACH is: http://hunter.listserv.cuny.edu/scriptshc/wa-hc.exe?A0=NETEACH-L&X=38900107A63E5361C6&Y=yuhua.hu%40education.ed.ac.uk

[3] Very often *voice recognition* is used interchangeably with *speech recognition*, although some people (e.g., Coniam 1999) insist that a distinction be drawn between Voice Recognition (VR) and Speech Recognition (SR): VR requires machine training and is *speaker-dependent*; speech recognition, in contrast, is *speaker-independent*.

floating around the Internet', Grandjean-Levy (ibid, p.1) observed that email had actually driven her students to pay more attention to the form of the language. Pellettieri (2000) also claims that task-based synchronous CMC, such as chatting, indeed pushes learners to form-focused linguistic modifications, and hence can play a significant role in the development of grammatical competence.

Most online language learning is still supported by asynchronous text-based communication for reasons of cost and bandwidth limitation rather than pedagogical advantages (Barr, Leakey and Ranchoux 2005; Brown and Baggaley 2003; Hampel 2003; Lamy 2004). Some teachers worry that CMC contains too few social context cues to be appropriate for language acquisition, but Spears and Lea (1992) argue that the common assumption that more social cues mean more communicative power is not necessarily true. They point out that plentiful of empirical work has suggested that the 'cuelessness' of CMC actually elicits more uninhibited or riskier behaviour than face-to-face interaction, and they hence claim that CMC accentuates the effects of both social and individual aspects of interactional behaviour. Gunawardena (1995) agrees that computers are capable of fostering personal and friendly interactions that are crucial to language acquisition. For instance, Nunan's (1999) study on the students' online conferencing discourse concluded that the interactive opportunities provided by technology clearly facilitated 'the evolution of a shared culture between participants in the learning process'(p.70). Pellettieri (2000) and Blake (2000) also found that CMC promoted students' noticing of gaps in their interlanguage and they were actively negotiating meaning and sharing insights about linguistic matters. Furthermore, CMC promotes more equal and better participation, leading to more output of higher level of expressiveness and accuracy in both oral and written forms (e.g., González-Bueno 1998). Many researchers have also emphasized CMC's potentiality to raise intercultural awareness as well as the linguistic awareness (e.g., Kinginger 1999; Warschauer 1997; Zeiss and Isabelli-Garcia 2005).

On the whole, studies have demonstrated that, not only do computer-assisted interactions quantitatively ensure more balanced participation among students (and between students and teachers), but also qualitatively they are lexically and syntactically more complex than face-to-face discussions (Kern and Warschauer 2000; Warschauer 1996).

2.6. Effective Implementation of CALL

For the benefits of CALL to be fully realized, language educators are still faced with many challenges. On the one hand, although CALL's self-accessibility is very conducive to the promotion of learner autonomy, learner autonomy in turn requires the learning process to be as personalized as or even more personalized than classroom learning. Human learning and teaching is essentially characterized by 'free input from students and error-contingent, well-considered feedback' from the teacher (Tokuda 2002, p.324). However, human language is so unpredictable that it is still impossible for computers to cope with open-ended dialogue with learners or give consistently accurate, comprehensive feedback on learners' natural language input. Although much effort has been made to develop tutorial software packages that try to be more sensitive in assessing and meeting learners' needs (e.g., Baker 1997; Biddulph 1997; Brooks 1997). Tokuda (2002) asserts that advanced AI technologies are badly needed if a CALL system aims to emulate a human teacher. Higashi (1997, p.78) claims that 'most of the excellent programs available provide guided student-computer interaction which is useful for practicing grammar, functions and even lexical items but not for real communication.' Therefore, CALL still needs robust technology and sound pedagogy to integrate as much communicative capacity into the whole learning process as possible.

On the whole, CALL's role in the L2 classroom has not outgrown some of its major limitations even after nearly half a century's evolution. That is, it is still not that of 'a spontaneous dialogue partner in either the written or the spoken medium' (Ahmad *et al.* 1985, p.54). Fortunately, with the advent of the Internet, computers are at least able to mediate communications between humans. Currently, the Internet is seen to be the most fertile land where communicative language activities can flourish (e.g., Arnold *et al.* 1997; Higashi 1997; Lee 1999). Yet, much effort is still needed to design more effective CALL features with which written or spoken communications can be conducted as productively and spontaneously as possible for learners.

After taking into account both the technological advantages and limitations, the successful implementation of CALL is still dependent on human factors. Research has revealed that the following factors are often crucial for effective CALL practice.

Change of Teacher & Student Roles

In the traditional TESOL classroom, the teacher is like Atlas who supported the heavens on his shoulders, assuming full responsibility for everything that goes on in the classroom, whereas, students are merely a vessel to fill, and their success is solely dependent on how well they conform to the teacher's standards and master the knowledge imparted from the teacher (Lam and Lawrence 2002). This dominant role of the teacher persisted through most of the second language teaching methods in history, however, the advent of educational technology has changed the roles of teachers and students profoundly. The teacher's status as authority and expert has been challenged by the computer which contains richer, more accurate and interesting information and resources. 'Technology has not only taken away some of the teachers' managerial responsibilities but also their personal sense of expertise, which is at the core of a teacher's identity' (ibid, p.297). They are now expected to assume three new roles (Lai 1993):

- As Planner and Manager: Teachers have to understand why and how computers should be integrated into the existing curriculum, therefore, they have to be innovative and willing to take risks in their curriculum planning. Meantime, teachers also have to manage classroom computing resources.
- As Guide or Facilitator: Teachers have to be sensitive to learners' learning process, foster their metacognitive skills and provide encouragement and help whenever needed.
- As Participant: Since teachers are no longer the knowledge authority, they have to learn alongside students.

On the other hand, students are obtaining more autonomy in their learning (Peterson 1997, 2000; Warschauer, Turbee and Roberts 1996) and they are no longer limited to 'dutifully absorbing the pearls of wisdom dispensed by the teacher' (Lam & Lawrence 2002, p.296). Although such a change is in line with the objectives of the more communicative and learner-centred language pedagogy, a fair proportion of teachers and students may feel uncomfortable in adjusting to such role changes. Some researchers (e.g., Saye 1997; Shin, Schallert and Savenye 1994) even found that many students seemed to value teacher control more highly than their teachers did. Not surprisingly, Lam & Lawrence's (2002) study found that, after a short period of CALL experience, their students gained some expert and managerial functions and more autonomy, but generally remained recipients of knowledge. However, it is suggested that on many occasions such continuation of the traditional roles is not necessarily due to the rejection of other roles, but rather due to external factors such as time pressure and the use of unfamiliar software which is in the target language.

User Attitudes

Both the teacher's and the learner's attitudes toward E-learning have been critical variables in the effective use of educational technology. Concannon, Flynn and Campbell (2005) found that when their subjects' previous computing experience did not pose any problem for their present use of ICT, their attitudes to computers and awareness of online resources seemed to be a stronger predictor of students' likelihood to use ICT resources. The literature reveals generally positive and welcoming attitudes from learners (as can be seen in Part IV of this Chapter). Students typically find ICT makes learning 'faster, easier, more fun, more interesting, more real, more up-to-date, helps identify mistakes better and helps to learn from each other', however, most of them still seem to 'sit on the fence and have no clear view, as yet, of the impact of technology on their learning' (Söntgens 2001, p.65).

Concannon *et al.*'s (2005) study demonstrated that teachers' enthusiasm for the ICT facilities and tasks was an important initial motivator for the students to access the online learning material. Knezek, Miyashita and Sakamoto (1993) predicted that future generations of teachers would come to their teaching positions with well developed computer skills and positive attitudes. However, Veen (1993) claims that teachers' beliefs are hardly changed by the influence of information technology. Until 2002, Gillespie and Barr (2002) reckon there are still three kinds of reactions from teachers towards ICT use in education: radical (enthusiastic about E-learning), reluctant, and resistant. At present language teachers' fear of and resistance to using ICT in their practice is still not negligible if any CALL system is to be truly integrated and effective in facilitating learning.

Organisational Support

Organisational support includes factors such as institutional policies, curricular design, hardware facilities, supporting technical and administrative staff and training opportunities. Barr and Gillespies' (2003) comparative study of Cambridge, Toronto and Ulster University is an excellent example which highlights the importance of organisational support for effective implementation of CALL at higher education level. Although both Toronto and Cambridge had extensive CALL resources (both software and lab facilities), in Cambridge CALL did not fit in with the university curriculum. Consequently, many students were unaware of the available CALL resources. The evaluation procedure in Cambridge, where most courses were assessed entirely through sessional examinations also meant that many resources were used solely for self-study or for examination revision. On the contrary, in

Toronto, ICT was considered a natural part of the teaching and learning experience, which meant students used CALL both in and after class and participation coursework marks were awarded to those students who used CALL. This e-culture in general helped the integration of CALL into the university curriculum. Barr and Gillespie's study also showed that dedicated staff were required to coordinate and ensure the use of CALL. In Toronto, a very comprehensive staffing structure was available to coordinate the use of ICT. Academic staff had access to state-of-the-art facilities, and they could call upon the expertise of technicians whenever they wanted to create their own materials.

What is worth noting is that even if all these conditions are met, teacher factors still outweigh organisational factors in explaining teachers' use of E-learning facilities (see Veen 1993). Therefore, at the implementation level, an infrastructure of both innovative academic staff and supportive non-academic staff need to be put in place before learners can truly benefit from CALL systems. Just as Allum (2002) puts it, 'CALL is the medium, but the method and results are not CALL-specific'(p.149).

Part III: Learning Style

The importance of individual differences in learning contexts has been recognized from the early 20th century (Thorndike 1903). Research on learning styles has enjoyed an abundant literature which comprises not only many conceptions concerning learning style, but also confusions and controversies about its composition and its implications for education.

2.7. Conceptualization of Learning Style

What constitutes learning style and how it should be measured has been an area well explored and debated. The field boasts an impressive number of definitions, constructs and controversies.

2.7.1. Definitions

Definitions of learning style are innumerable in the literature which has resulted in 'a bewildering confusion' (Curry 1991, p.248). Each researcher is usually only interested in one of the dimensions of the learning process, and their theoretical foundations are often very different (Cano-Garcia and Hughes 2000). However, there are some general definitions that can roughly demarcate the area of this research discipline. For example, Reinert (1976, p.161) proposes that an individual's learning style is 'the way in which this person is programmed to learn most effectively, e.g., to receive, understand, remember, and be able to use new information.' The word 'programmed' gives a notion of predefined qualities despite the learner himself/herself. However, Gregorc (1979, p.234) maintains that 'learning styles consists of distinctive behaviours which serve as indicators of how a person *learns from and adapts to* (author's emphasis) his environment', and 'it also gives clues as to how a person's mind operates'. This latter perspective indicates that learning style can *evolve* within certain innate limits. On the whole, the core definition of learning style—that is, such preferred or habitual patterns of learning are consistent over long periods of time and across many areas of activities—remains virtually the same (Sternberg and Grigorenko 2001), whereas, the width of the concept and the degree of its mutability varies from one researcher to another. Therefore, learning style should be construed in a broader sense as a set of habitual behaviours prescribed by both nature and nurture in educational settings.

2.7.2. Learning-related Style Concepts

Due to its numerous definitions, Verheij, Stoutjesdijk and Beishuizen (1996) describe the construct of learning style as 'rather fuzzy'. There has never been a consensual theory as to what constitutes learning style. In fact, there seem to be an endless list of sets of dimensions and different labels for them from different researchers. Moreover, definitions in this area also resulted in loose distinctions between style, strategy, and approach. To better understand the construct of learning *style*, it may be useful to differentiate between these concepts first. Cano-Garcia and Hughes (2000, p.414) suggest that 'one of the best to have analysed the concept of style, its origins, its development and the different explicative theoretical models' is from Grigorenko and Sternberg (1995) who have classified style theories into three types: cognition-centred styles, personality-centred styles and activity-centred styles. All these three types of style conceptions have been, to more or less extent, applied in investigations on learning styles.

Cognition-Centred Styles

The term 'cognitive style' was developed by cognitive psychologists who proposed that there are characteristic modes of functioning in individuals' perceptual and intellectual activities that are independent of individuals' abilities and intelligence (Grigorenko and Sternberg 1995). Messick & Associates (1976) define cognitive style as the preferred ways of 'organizing and processing information and experience, which are conceptualized as stable attitudes, preferences, or habitual strategies determining a person's typical modes of perceiving, remembering, thinking and problem solving' (p.5).

A variety of theoretical models flourished mostly over a 30-year period beginning from the 1940s (a detailed list of the key works can be found in Rayner and Riding 1997). The most foundational cognitive style theory is Witkin's Field Dependence/Field Independence dichotomy. Field independence is defined as 'the extent to which a person perceives part of a field as discrete from the surrounding field as a whole, rather than embedded, or ... the extent to which a person perceives analytically' (Witkin *et al.* 1977, pp.6-7). The field independent person tends to articulate figures as discrete from their embedding contexts, whereas, the field dependent person tends to view objects globally in an undifferentiated fashion (Messick & Associates 1976). To be more specific, field-independent (FI) learners may be able to abstract information more readily from learning materials and prefer more nonverbal and solitary learning behaviours;

whereas, field-dependent (FD) learners may need more social cues (visual and verbal) and more reinforcements in order to learn effectively (Witkin *et al.* 1977).

While studies generally support the FD/FI framework (Saracho 1998), the validity of the instrument is still controversial. The measurement of field dependence, Embedded Figures Test (EFT), consists of a set of figures where simple-structured objects are embedded in the more complex objects. The degree of field dependence is measured by the time the subject uses to find the simple objects inside the complex objects. Sternberg (1999) questions that the test is not measuring *styles* but *abilities* in effect. Ability measures usually emphasize correctness or accuracy of response and level of overall performance (Messick & Associates 1976). The nature of Witkin's EFT implies there are 'right' or 'wrong' answers and it measures the trait by the length of time used to find the 'right' answers. However, Messick & Associates (1976) claim that in reality 'there are varying degrees of difference and overlap between particular cognitive *styles* and *abilities* (author's emphases) in terms of both conception and measurement' (p.11). Therefore, many researchers still regard FI/FD as cognitive *styles* even though they are assessed in terms of correctness as in an ability test.

Besides Witkin's FI/FD theory, the field of cognitive style also sees several other prominent conceptualizations, e.g., Pask's (1976; 1988) Holist-Serialist model, and Gregorc's (1979; 1984) Abstractly-Concretely and Sequentially-Randomly distinction. Most of these theories demonstrate that the basic construct of 'cognitive style' is mostly viewed as bipolar as well as value-differentiated (each extreme of the bipolar model has an adaptive value in different circumstances) (Cano-Garcia & Hughes 2000). In general, most cognitive style models are, to some degree, concerned with the extent to which a person pays attention to details and how open/flexibly a person perceives things or ideas (field independent/ random (global) /abstract or field dependent/sequential/concrete.). Plenty of research has shown that such cognitive preferences have an effect on learning effectiveness in different educational settings. For instance, the two experimental studies of Miller (2005) with a non-linear computer-based course, which carefully ruled out the possible effect of factors such as learners' previous computer-based instruction (CBI) experiences and subject knowledge and the time spent on the course, revealed that students with sequential learning styles learned significantly less than those with global styles. In contrast, Ross and Shultz's study (1999) on a computer-assisted instruction (CAI) program in a linear format found that concrete students and abstract-

sequential students all made gains while abstract-random students' performance decreased. Hence, Miller (2005) suggests that learners with the global/random style are more comfortable with E-learning systems designed with non-linear structures while sequential learners will do better with linear, highly-structured E-learning systems.

Personality-Centred Styles

Personality is something that everybody knows yet nobody can tell (Pervin 1990). It is a concept historically notorious for its apparent yet elusive qualities. Little wonder that 'the study of personality continues to be a many-faceted field, with diverse conceptions of its subject matter'(Klein, Barr and Wolitzky 1967, p.467). While significant progress has been made in the theorising of personality, the educational implications of such theories remain problematic. Some definitions hold that the science of personality revolves around 'the study of individual difference variables and behavioural predispositions which underlie trans-situational consistencies in behaviour' (Sarason and Smith 1971, p.433); some define personality as 'the interlocking, the structural or architectural totality rather than the sheer generality, of one or more traits' (Klein *et al.*, 1967, p. 469); yet others combine these two types of definitions and offer a general consensus of this psychological concept. For example, Eysenck (1950, p.25) proposes a comprehensive definition of personality as follows:

> We may say that personality is the sum-total of the actual or potential behaviour-patterns of the organism, as determined by heredity and environment; it originates and develops through the functional interaction of the four main sectors into which these behaviour-patterns are organized: the cognitive sector (intelligence), the conative sector (character), the affective sector (temperament) and the somatic sector (constitution).

With this large array of different style definitions, there have emerged a seemingly infinite supply of personality dimensions which have generated an 'ever-increasing number of commercially available questionnaires and inventories' (John 1990, p.88). The field has thereby been separated into different camps with each adhering to a set of dimensions different in number, nature and name (ibid). There are a few milestone theories in the development of personality research, three of which will be reviewed hereafter because they have evolved from different backgrounds and methodologies but all contributed significant insights into the personality taxonomy.

1) Cattell and the Discovery of 'Big Five'

Cattell was guided by the 'lexical' approach (study of personality-relevant terms in dictionaries) to identifying major personality traits. This approach postulates that 'most of the socially relevant and salient personality characteristics have become encoded in the natural language' (John 1990, p. 67). Originally, Allport and Odbert (1936) examined a Webster dictionary and provided a list of 17,953 words that 'distinguish the behaviour of one human being from that of another' (p.24). Cattell (1945) then condensed the list to 35 variables, of which the 16 most famous are included in his Sixteen Personality Factors Questionnaire (16PF). However, virtually everyone who factored Cattell's data found only 5 factors (Goldberg 1981). These five major factors have appeared repeatedly in both peer ratings and self ratings in a large number of different studies (e.g., Fiske 1949; Norman 1963), hence they were called the 'Big Five' later (Goldberg 1981).

The Big Five theory contends that most human personality traits can be boiled down to five broad dimensions, regardless of language, culture, or age (e.g., Acton 2001; Sulloway 2005). A growing body of research, with some (e.g., Sulloway 2005) even involving millions of people globally over a few years, has pointed to the five-factor model as a recurrent and more or less comprehensive taxonomy of personality traits (McCrae and Costa 1987). The strong test-retest reliability and concurrent validity of the five-factor model has been extensively documented (e.g., Busato *et al.* 1999, 2000; Furnham 1996; John 1990; McCrae and Costa 1987). In scientific circles, the Big Five is now the most widely accepted model of personality. As a result, Costa and McCrae (1997, p.271) very confidently claim that:

> The five-factor model provides a common basis for classifying natural language trait terms, scales from a wide variety of personality inventories, ... Because it is comprehensive, conclusions about the five domains ... can confidently be treated as conclusions about the full range of personality traits.

However, Big Five theorists disagree on precisely how to conceptualize the factors themselves (McCrae & Costa 1987). Between 1949 and 1989, there emerged 12 Big Five personality models with their differentiated labels (see John 1990 for the complete list). There is, therefore, no single Big Five, and there are often questions such as 'Which Big Five?' or 'Whose Big Five?' Luckily, these 'fuzzy and partially overlapping' labels are often represented with some common, consistent prototypical exemplars which can help researchers correlate them (John 1990, p.78-79). As McCrae

and Costa's labels (abbreviated as OCEAN) are more frequently cited nowadays, the defining features of OCEAN are described here as a typical five-factor model (McCrae & Costa 1987):

- Openness to experience: original, imaginative, broad interests and daring.
- Conscientiousness (versus undirectedness): conscientious, careful, thorough, dutiful, moralistic, hardworking, purposeful and adherent to schedules or requirements.
- Extoversion (or Surgency): sociable, fun-loving, affectionate, friendly, and talkative.
- Agreeableness (versus antagonism): [low agreeableness means] cognitively mistrustful and sceptical; affectively callous and unsympathetic; behaviourally uncooperative, stubborn and rude.
- Neuroticism (versus emotional stability): worrying, insecure, self-conscious, and temperamental.

2) Eysenck

Eysenck's theory of personality was derived from a very different background from Cattell's. Eysenck and his colleagues carried out a series of questionnaires and experiments with patients who showed neurotic defective symptoms. The analyses of the ratings from questionnaires with hundreds of neurotic patients resulted in a three-factor personality model: 1) a general factor of 'neuroticism' ('N'); 2) a bipolar factor labelled 'extroversion-introversion' ('E'); and 3) psychoticism ('P') (Eysenck 1950; Eysenck and **Eysenck** 1976). According to Eysenck (1990), a personality model must be a hierarchical system that has four levels (illustrated in the following figure):

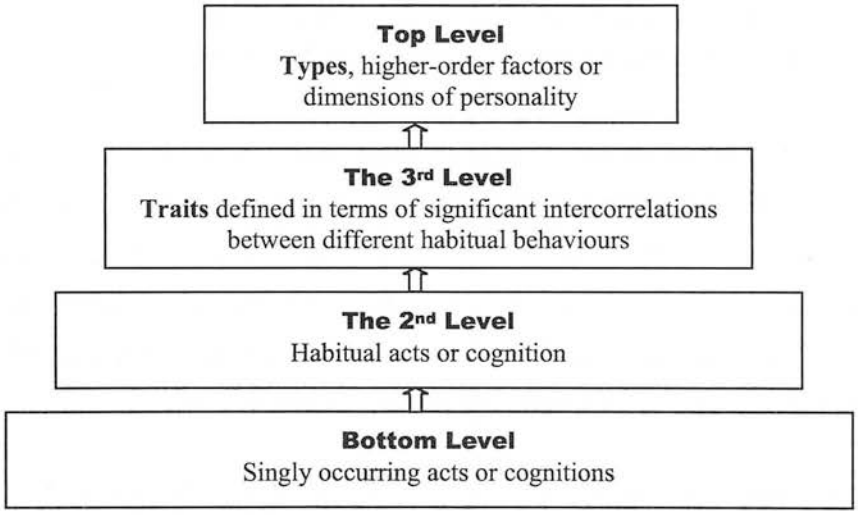


Figure 2: Tiered Personality Model

Eysenck (1990) argues that the E (Extroversion) and N (Neuroticism) from the Big Five model are higher-order *type* factors while 'Conscientiousness' and 'Agreeableness' are

only lower-order *traits*. Therefore, Eysenck considers his 3-factor model a sufficient 'paradigm' of personality and claims that his construct is mirrored in many other personality models and proved to be robust with subjects from different backgrounds (ibid). Zuckerman, Simons and Como (1988) studied the intercorrelations between 46 personality scales and came to the conclusion that a three-factor model *is* the best solution.

3) The Myers-Briggs Type Indicator (MBTI)

Myers-Briggs' personality theory was established upon the Jungian typology. Jung proposes that personality has a structure of 3 tiers: conscious, personal unconscious and collective unconscious, but only four different functions of consciousness can be distinguished—sensation, thinking, feeling and intuition, and there are two levels of conscious development: extroversion and introversion (Cartwright 1979). The Myers-Briggs model interprets Jung's typology with four basic distinctions (Myers *et al.* 1998):

- Extroversion-Introversion (E-I): Extroverts are often friendly, talkative and express emotions easily while introverts are more often reserved, quiet and more likely to bottle up their emotions.
- Intuitive-Sensing (S-N): An intuitive person prefers to go beyond the information given by the senses, perceive information holistically and look for meanings and potentials while a sensing person perceives realistically through the senses.
- Thinking-Feeling (T-F): Thinking people tend to be analytical and logical whereas feeling people are more subject to their emotions and values.
- Perceptive-Judging (J-P): Judging people prefer things to be planned and orderly, to be completed and issues to be resolved, whereas, perceiving people tend to live in a more flexible, reactive manner, and keep options open and adapt to life.

With these 4 categories, theoretically there can be altogether 16 different types (4×4) of personality. The style test, namely the Myers-Briggs Type Indicator (MBTI), is a questionnaire that has evolved from Form C, D, F, G to H. Form G is now the standard form of the test which contains 126 items with each offering two options to choose. The MBTI is probably the most commercially successful personality test (Arnau *et al.* 2003). It stands out among varieties of personality assessment devices for three reasons:

> [I]t is based on a classic theory, it purports to measure types rather than traits or continuous variables, and it is widely used to explain individuals' personality characteristics not only to professionals but also to the individuals themselves and their co-workers, friends and families (Furnham 1996, p.303).

There are many researches that have reported its fairly strong scale reliability (e.g., Saggino and Kline 1995) and test-retest reliability (e.g., Saggino and Cooper 2001).

Some studies also lend support to the validation of the four-factor construct of the test (Harvey, Murry and Stamoulis 1995; Jackson and Lawty-Jones 1996). The three literature reviews on the research on the MBTI in three different decades (Carlson 1985; Carlyn 1977; Murray 1990) concluded that it seems to be a reasonably valid instrument, although it 'may not reflect Jung's typological theory as accurately as the authors hoped or claimed' (Murray 1990, p.1199).

However, there are also many strong critics of the MBTI who have questioned the inherent psychometric problems of the test and its unsatisfactory concurrent validity with other major personality models. Myers *et al.* (1998) contend that the structure of the Jungian typology is categorical as opposed to dimensional, that is, the indicator is not trying to measure people, but to allocate them into groups. Hence, the forced-response format of the test assumes that individuals have dichotomous preferences for attitudes and functions. This is precisely what many researchers find most problematic (e.g., Cowan 1989; Girelli and Stake 1993; McCrae and Costa 1989). Arnau *et al.*'s (2003) study on three Jungian personality measures (including the MBTI) demonstrated that the preferences appeared to manifest as continuous dimensions rather than dichotomous. This suggests that differences between preference types as defined by the MBTI 'are more likely variations in *degree* and not variations in *kind*' (ibid, p.249). Moreover, Furnham (1996) asserts that the forced-response format of the test, which is an ipsative[1] measure, distorts data (more about ipsative scales will be discussed in the following section). Apart from the scoring method and the typological rather than trait approach, McCrae and Costa (1989) are also very critical of the fact that the MBTI has omitted Neuroticism which all serious theorists believe is a fundamental dimension of personality. However, empirically, Saggino and Kline's (1996) correlational study of the MBTI against Cattell's 16PF and Eysenck Personality Questionnaire (EPQ) did find that the MBTI scales resemble three out of five factors of the Big Five model and are more precisely related to E, P, N factors of the EPQ. This shows that even though the MBTI does not include Neuroticism in its construct explicitly, it still emerges as an underlying factor. Nevertheless, Saggino and Kline's study still adds itself to the list of the investigations which suggest that the MBTI items fail to form the factorial structure

[1] An 'ipsative measure' is a self-reporting measure. It often involves forced choice between two extremes or ratings of a number of choices. To be specific, in the first case, if one chooses extreme A then s/he has excluded possibility of extreme B by default; or in the latter case, if one has to rate 3 choices and if s/he gives a value of 2 to choice A, then the other two choices will have either value 1 or 3 by default.

hypothesized by the test's authors; instead, very often a three-factor model or a five-factor model fits the data better (Arnau *et al.* 2003; Furnham 1996; Saggino & Kline 2001). Therefore, some researchers argue that MBTI is invalid and needs substantial modification.

In the view of the above three influential personality models, we may see that different personality theories often have similar groups of traits and descriptions of dimensions/types, just as Mackinnon (1944, cited in Eysenck 1950) points out, they will invariably overlap because they are only crude pictures of personality. The following table, which has been adapted from John's account of personality research history (John 1990, p.89), may offer a clear view of the overlap and correlations between the three personality style models described above:

Table 1: The Big Five and Dimensions of Other Similar Models of Personality

Big Five / Others	Extroversion	Agreeableness	Conscientiousness	Neuroticism	Openness to Experience
Eysenck	Extroversion--Introversion	Psychoticism		Neuroticism	
Myers-Briggs	Extroversion--Introversion	Feeling -- Thinking	Judging--Perception		Intuition--Sensing

Activity-Centred Styles

Activity-centred styles refer to those that people display when they are engaged in certain kinds of activities or settings. Students' styles observed in educational settings are termed as learning styles and for their teachers', teaching styles.

The most influential theory of learning style *per se* is Kolb's Experiential Learning Theory (ELT). Its measuring instrument, Learning Style Inventory (LSI) was developed in the 1970s and has been the most documented learning style construct in the literature ever since (Cano-Garcia and Hughes 2000). The ELT postulates that knowledge is created from grasping and transforming one's experience (Kolb 1984). The theory suggests that there are four dimensions of the learning process: 1) affective (sensing, feeling); 2) symbolic (cognitive, thinking skills); 3) behavioural (doing); and 4) perceptual (skills of observation) (Koob and Funk 2002). Corresponding to these four dimensions, there are two modes of grasping experiences—Concrete Experience (CE) (feeling) and Abstract Conceptualization (AC) (abstractness, thinking)—and two modes of transforming experience—Reflective Observation (RO) (watching/ reflection) and

Active Experimentation (AE) (doing/action) (Mainemelis, Boyatzis and Kolb 2002). These four modes form a four-stage learning cycle which starts from concrete experience as shown in Figure 3. Plotting the two bipolar continuums (CE-AC and RO-AE) orthogonally, we have four quadrants that categorize learners into 'divergers', 'assimilators', 'convergers' and 'accommodators'.

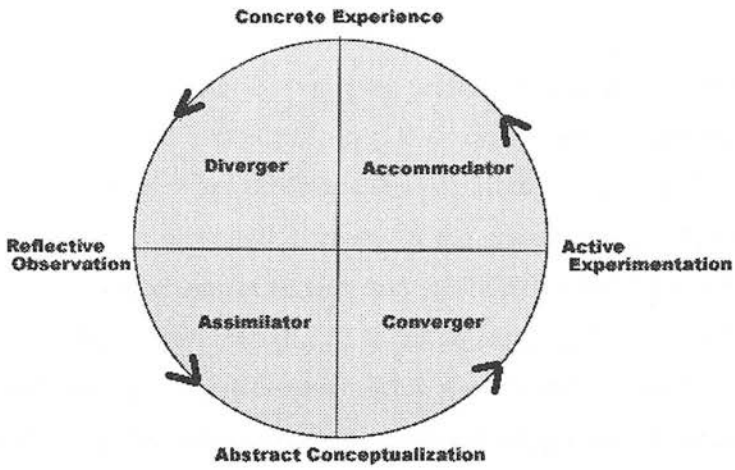


Figure 3: Kolb's ELT Learning Cycle

- Convergers: tend to be abstract conceptualizers, relatively unemotional, good at deductive reasoning and are interested in active experimentation.
- Divergers: prefer concrete experience and reflective observation, interested in people, imaginative and emotional.
- Assimilators: are more interested in reflective observation and abstract concepts than people, like to create theoretical models and use inductive reasoning.
- Accommodators: like concrete experience and active experimentation, enjoy being with people and new experiences, like to take risks.

Kolb's instrument includes 12 questions, each of which starts with a phrase such as 'I learn best from…', and has four endings corresponding to the four learning modes (i.e., CE, AC). The subject ranks the four ending from 1 (the least like him/her) to 4 (the most like him/her). Thus, an ipsative scale results. The instrument has been widely employed by researchers from various disciplines and cultural backgrounds, such as nursing, medicine, sociology, economics and psychology, etc. Moreover, Kolb's model has influenced the development of several other models of learning style. For example, Honey and Mumford's (1986) Learning Styles Questionnaire (LSQ) replicated and attempted to apply Kolb's theory in commercial settings.

In general the LSI has been found particularly useful in heralding an appreciation for diversity among learners and identifying useful interventions (Koob & Funk 2002). For instance, Sein and Robey (1991) discovered significant differences when the students

learned a text-based electronic mail filing system using an abstract and an analogical model: the convergers performed with greater accuracy with the abstract model and the accommodators performed better with the analogical model. O'Connor (1998) suggested that hands-on computer-based simulation games may be conducive for concrete learners. Also, it was found that assimilators are less 'instructor intensive' and prefer sequential and organized delivery of information (Blackmore 1996).

Nevertheless, Kolb's LSI has also received profuse criticisms despite its popularity in various areas. Cornwell and Manfredo (1994) claim that the empirical studies have generally not been supportive of Kolb's theory. Kolb revised the LSI in 1985 due to criticisms about the psychometric property of the questionnaire. However, there have still been many doubts about the validity and reliability of the instrument. Although the test-retest reliability of the revised LSI is no higher than the original one (Cornwell, Manfredo and Dunlap 1991; Newstead 1992), the criticism is mainly on the construct validity. Only very few researchers have produced supportive studies on the construct validity of the LSI (e.g., Ferrell 1983; Katz 1986; Loo 1999). Although researchers have found support for the model of two bipolar dimensions, often the bipolar continuums are different from Kolb's theory (thinking—feeling and watching—doing). For example, Geiger, Boyle and Pinto (1993) found two strong bipolar dimensions, but they were running from feeling to watching and from doing to thinking. Many researchers have tried to replicate studies using the LSI and factor-analyzed the results, but failed to verify the four learning types Kolb theorized (e.g., Cornwell and Manfredo 1994; Cornwell *et al.* 1991; Geiger *et al.* 1993; Loo 1999; West 1982). They suspect that the emergence of the bipolar structure without the 4-dimensional learning types is attributed to the ipsative scales of the LSI. Cornwell *et al.* (1991) explain as follows:

> [A]lthough ipsative scoring is appropriate to identify the primary or strongest factor for an individual among several construct valid dimensions, the inherent lack of independence of such scores precludes their use to evaluate or confirm a factor structure based on theory (Gorsuch 1974) (p.461).
>
> Ipsative scales by their very nature produce negative correlations. When analyzed by factor analysis, an intercorrelation matrix with many negative correlations will tend to produce bipolar factors (p.459).

In other words, ipsative scores are not considered suitable for factor analysis by some researchers. Cornwell *et al.* (ibid) proposed that a confirmatory analysis of Kolb's theory using non-ipsative scores is necessary for evaluating the LSI's construct validity.

As a result, Geiger *et al.* (1993) created an alternate normative version of the LSI which still consisted of the original items but was scored on a 7-point Likert Scale. Their study compared the construct validity of their normative version with that of the original ipsative version, and revealed that only the thinking dimension was supported by ipsative inventory, whereas, the normative version produced strong support for the four separate learning dimensions even though it did not produce any bipolar dimensions. Therefore, Koob & Funk (2002) assert that the LSI does not provide an adequate measure of learning style due to its 'suspect methodology, misapplication of statistical procedures, logical inconsistencies in theory construction and a general lack of support for reliability and validity' (p.303) and call for great caution for using it in social work research. Nonetheless, Loo (1999) still reminds us that the issue of factoring ipsative scores and all these criticisms about the factor structure 'do not take away from the usefulness of the LSI as a pedagogical tool' (p.216).

Thinking Style

Another important conception, which can hardly be compartmentalized into any of the aforementioned categories, is thinking style. It is often used interchangeably with learning styles, however, many researchers do not see them as identical (e.g., Cano-Garcia & Hughes 2000; Rayner & Riding 1997, Sternberg 1999). The most widely documented thinking style theory is Sternberg's (1999) 'Mental Self-government' theory. Believing that 'we do not have *a* style, but rather a profile of styles' (ibid, p.19), Sternberg proposes that just as there are different ways of governing society, there are different preferences with which people use their abilities. This style framework comprises five facets (adapted from Sternberg 1999, pp.20-26):

1) Functions

Legislative: legislative people like to decide for themselves what to do and come up with their own ways of doing things

Executive: executive people like to follow rules and prefer problems that are prestructured or prefabricated.

Judicial: Judicial people like to evaluate rules and procedures, and prefer problems in which one analyzes and evaluates existing things and ideas.

2) Forms

Monarchic: a monarchic person is single-minded and driven.

Hierarchic: the hierarchic person has a hierarchy of goals and recognizes the need to set priorities.

Oligarchic: oligarchic people tend to be motivated by several, often competing goals of equal perceived importance.

Anarchic: the anarchic person seems to be motivated by a potpourri of needs and goals that can be difficult for him or her, as well as for others, to sort out. Anarchic people take what seems like a random approach to problems.

3) Levels

Global: global individuals prefer to deal with relatively large and abstract issues.

Local: local individuals like concrete problems requiring working with details.

4) Scope

Internal: internal individuals tend to be introverted, task-oriented, and sometimes socially less aware.

External: external individuals tend to be extroverted, outgoing, and people-oriented.

5) Leanings

Liberal: The liberal individual likes to go beyond existing rules and procedures, to maximize change, and to seek situations that are somewhat ambiguous.

Conservative: The conservative individual likes to adhere to existing rules and procedures, minimize change, avoid ambiguous situations and stick with familiar situations in life.

These 5 dimensions produce 13 thinking styles, which in turn form three types of people (see Zhang 2005). On the whole, what Sternberg terms as 'Forms', 'Functions' and 'Levels' seem to be very similar to what studies on cognitive and learning styles are concerned about, whilst 'Scope' and 'Leanings' reflect more of the social and affective (personality) factors that contribute to individual differences. The 5 dimensions are in remarkable resemblance with the characteristics described in the Big Five model. They may be correlated with Costa and MaCrae's OCEAN model on a one-to-one basis in the following table except that the pair Levels—Neuroticism is relatively far-fetched:

Table 2: Thinking Style vs. Big Five

Sternberg's Thinking Style	Costa & MaCrae's Big Five
Functions	Agreeableness
Forms	Conscientiousness
Levels	Neuroticism
Scope	Extroversion
Leanings	Openness to experience

In general, thinking style describes a comprehensive combination of dimensions of a human being's personality and intellectual characteristics. The Mental Self-government model has been proved a reliable and valid general theory of style in both academic settings (Zhang & Sternberg 2002) and non-academic settings (Zhang 2005).

2.7.3. Construct of Learning Style

The complexity of the countless style models may look like a spider's web, however, the interrelationships among the four types of styles presented above can be more simplistically described as 'different layers of an onion' (Curry 1987, cited in Rayner &

Riding 1997). Curry (ibid) suggested that the inner core of a 'style onion' is made up of personality-centred models, leading to a second stratum of information-processing models and then to the outer layer of instructional-preference models of learning styles.

Much of the recent comparative research between different style conceptualizations has started to unveil a clearer picture of their interrelations. Firstly, as cognitive style looks at a person's mental preferences for processing information, it can be naturally seen as one aspect of thinking style. Secondly, although numerous authors use cognitive style and learning style interchangeably, there is a technical difference between the two terms. Cognitive style focuses on the 'form' of cognitive activity (i.e. thinking, perceiving, remembering), but not its content. Whereas, learning style is seen as a broader construct that includes cognitive along with affective and physiological styles (Triantafillou, Pomportsis and Demetriadis 2003). Therefore, 'it is arguably useful to think in terms of cognitive style representing the core of an individual's learning style' (Rayner & Riding 1997, p.23).

Thirdly, learning can be considered a thinking sub-product, the trace which our thoughts/memories leave (Craik and Lockhart 1972). Learning is related to thinking, and as individual differences intervene we fall into certain patterns when we think as well as when we learn. Hence, the term 'thinking style' has been used just as much as 'learning style' in the domain of educational psychology (Cano-Garcia & Hughes 2000).

Lastly, cognitive style is frequently described as a personality dimension which influences attitudes, values, and social interaction (Triantafillou *et al.* 2003). Furthermore, personality is generally considered to play a crucial role in the formation of learning styles. Numerous researches using differentiated descriptions of learning orientation indicate that learning style is a subset of personality or a learnt component of personality (Duff *et al.* 2004; Furnham 1992; Furnham, Jackson and Miller 1999; Jackson and Lawty-Jones 1996). Furnham (1996, p.296) claims that 'if well-established and theoretically sound personality variables related closely and coherently to learning style or interpersonal behaviour (accounting for between 10-25% of the variance), some may argue that it may simply be more valuable to measure only the former.' However, Busato *et al.* (1999) conclude from their research that personality and learning style measurements should still be used separately in educational settings. Interestingly,

Furnham *et al.*'s (1999) later research also confirms that learning style measurements are better predictors of academic achievement than personality instruments.

On the whole, 'the tendency of recent theories in styles is to integrate cognitive styles into learning styles and learning styles into thinking styles' (Cano-Garcia & Hughes 2000, p.424). However, the interrelationship between these style layers may now look like a different onion from Curry's in that the breadth of each layer is different in the light of the discussion above. While personality is widely seen as the foundation of cognitive and learning styles, it is still not clear whether or how much it dictates thinking styles. Therefore, the relationship between the four style conceptions may look like a single onion or a twin-onion as depicted in the following figures.

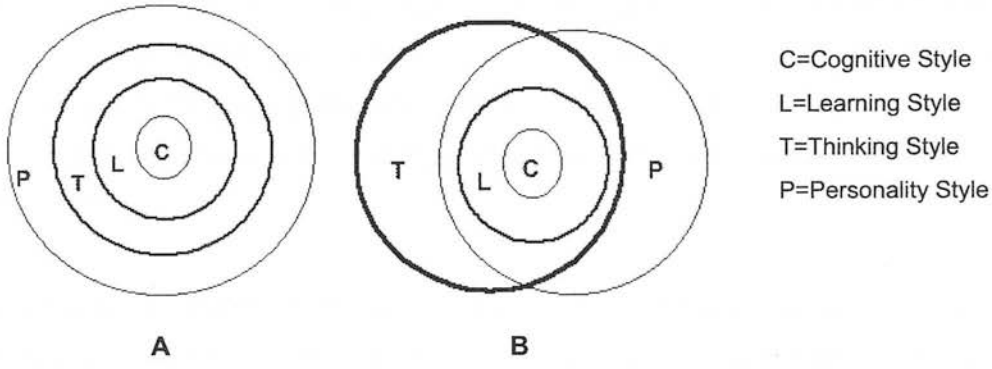


Figure 4: Learning Style 'Onions'

To summarize, a learning style measure should comprise elements from 3 facets: cognitive (thinking), behavioural (learning), and affective (personality). Just as Rayner and Riding (1997) point out, we need to emphasize developing measurement constructs that reflect a *profile* of an individual's learning style.

2.8. Importance of Learning Styles

One of the controversies about learning styles is whether it is meaningful or possible to take learning styles into consideration of our educational practice. The argument is that educators should not endeavour to create a wide variety of materials to suit different learners, but to produce designs that are good for everyone and train learners on better methods of learning, or to get diverse children aligned with the education system (Draper 2003; Landauer 1999).

Nevertheless, there are innumerable researches that have demonstrated that learning *can* be enhanced when instructions accommodate various learning styles of students (e.g., Buch and

Bartley 2002; Entwistle, McCune and Walker 2001; Kolb 1984; Leone *et al.* 2005; Lounsbury *et al.* 2005; Moutafi, Furnham and Paltiel 2005). Gregorc (1984) found that individuals learned with ease when the learning environment was compatible with their learning style, but learning was thought of 'as a challenge, hard, or distasteful' when there was a mismatch (p.54). Dunn, Griggs, Olson and Beasly (1995) conducted a meta-analysis of 42 experimental learning style studies over a 10-year period involving 3181 students and concluded that matching students' learning styles with compatible educational interventions resulted in a measurable increase in their academic performance. In a similar vein, Zhang's study (2005) of thinking styles and students' achievement has also revealed that physics students taught with combined styles outperformed those taught with single styles. She hence claims that teaching for a balanced use of thinking styles has superiority over teaching that uses only one style. More specifically, in foreign language education, Oxford (1990, p.13) claims that 'general learning style, such as field dependence-independence, analytic-global orientation, or the judging-perceiving mode', has a strong effect on language learning strategies which were found to be skilfully utilized by successful learners (e.g., Ramirez 1986; Rubin 1975).

The importance of identifying learning styles is also confirmed by evidence from neuroscience that educators must make provisions for individual differences in learning styles by providing alternative grouping arrangements, instructional materials, time frames and so on (Genesee 2000).

However, despite the abundant findings of significant correlations between learners' learning styles/approaches and their learning achievements, some research showed that it may not be fully justified to consider learning styles distinguishably predictive of attainment (see Busato *et al.* 2000; Duff *et al.* 2004; Furnham *et al.* 1999). The percentage of variance in learning performance explained by personality or learning styles is often very low (Furnham *et al.* 1999). Nonetheless, Entwistle (1972) cautions us that:

> [I]t is dangerous to assume wide generality in statements about the relationship between personality and academic attainment. Age, ability, sex, geographic area, classroom organisation, class size, teaching methods and teachers' personality may all affect these relationships to some extent' (p.147).

Instead, in my opinion, study of learning style should not aim itself at predicting learning performance, but rather at identifying individual differences, and helping accommodate them

and improve learners' attitudes, motivations and their learning experiences, which may in turn encourage more meaning-seeking learning and enhance learning directly or indirectly in the long run.

2.9. E-learning & Learning Styles

It is proposed that learning styles should be taken into account in decisions regarding the use of the many delivery modes made available by the advancement of technology (Buch and Bartley 2002). As ICT becomes more prevalent in education, it seems logical to extend the matching findings from classroom-based teaching and learning to E-learning (Miller 2005). Considerable research has demonstrated that there is a kind of interaction between E-learning designs and learner styles. For example, Ford and Chen (2001) revealed that students in conditions matched with their Field Dependent/Independent styles obtained better scores. Liu and Reed (1995) found that even when FD and FI students' learning performances were equally good, their students chose different types of media, tools and learning aids. It is also suggested that FD students may succeed best with socially oriented learning tasks (e.g. cooperative learning style) whilst FI students would rather work on abstract and less socially oriented assignments (Saracho 1998). Therefore, substantial evidence (e.g., Lee *et al.* 2005; Liu and Reed 1994; Papanikolaou *et al.* 2002; Triantafillou *et al.* 2003; Triantafillou *et al.* 2004) has accentuated the importance of having different perspectives of hypermedia design for potential matching with various learner characteristics, which would possibly result in higher quality of learning. Goodyear *et al.* (2001) assert that students of *all learning styles* are likely to experience benefits when E-learning courses are well-designed and well-managed.

Since the learning environment has changed greatly, a question prompted by Peter Honey is worth considering---'Are there E-learning styles?' He did an online questionnaire of 242 people about potential likes and dislikes about E-learning. However, even Honey is aware that many researchers would dismiss this question by thinking that 'The learning styles we have come to know and love apply to all types of learning.' Honey (2001) admitted that his survey has initially failed to reveal E-learning styles as such, but he was confident that it still demonstrated some important differences about people's approaches to online learning.

To speculate if there will emerge E-learning styles along with the growth of computer-assisted learning, what needs to be considered foremost is probably the mutability of

learning styles. Learning style is believed by some researchers to be stable and not context-specific, but is it not changeable at all? On the one hand, the core component of learning style—cognitive style—is thought to 'develop slowly and experientially' and appear to be 'not easily modified by specific tuition or training' (Messick & Associates 1976, p,6). On the other hand, it is largely accepted now that learning styles are indirect manifestations of personality which is still under debate as to how mutable it is depending on the influence of nature or nurture (Anastasi 1958). Pervin (1990, p. 15) claims that all schools 'believe in the *potential* for personality change, but there are major differences in *optimism* concerning change (author's emphases)'.

What is more, Genesee (2000) claims that cognitive differences may not be a simple matter of personal preference, but rather of individual differences in the hardwiring of the brain and, thus, beyond the individual's control. According to neuroscience research, learning is about making neural connections in the brain. There is direct evidence now that when learning occurs less input is required to activate established connections (ibid), which partly explains why learners come to have different preferred styles of learning: the brain would opt for the *established* connections or more familiar information processing procedures which require less effort. Naturally, therefore, we may argue that for the brain to reconstruct the 'well-trodden paths' would take considerable time. Thus, learning style is not what an individual may be able to adopt or change overnight.

Learning style may be largely dictated by the brain development, however, new evidence from neuroscience also suggests that the brain is much more malleable than previously thought (Genesee 2000). Scientists have carried out ingenious experiments that reveal the incredible neural flexibility of the developing brain: new wiring can be manufactured and established in the adult brain, or old patterns of connectivity can be converted to serve functions that they never served before (see Elman 1996; Sur, Garraghty and Roe 1988).

Progression in neuroscience consistently shows that the brain has certain plasticity. Hence, learning styles, largely based on brain activities, must be malleable to a certain degree, too, which means they will not be static throughout a learner's life. As aforementioned, since styles are in part socialized, they can be modified by the environment in which people live (Sternberg 1999). In addition, the stability of personality also varies in different stages of people's lives. It is found that between the ages of eighteen and thirty, mean levels of neuroticism, extroversion and openness decrease slightly whereas agreeableness and

conscientiousness increase slightly, and after the age of thirty mean levels of personality traits change very little (Matthews, Deary and Whiteman 2003).

To sum up, it is safe to say that learning styles are learner characteristics that are relatively consistent under most learning situations. Nonetheless, they are also malleable if a learner is either compelled to, or chooses to, change them (e.g. when faced with very different information stimuli and input quantity through E-learning environments). It can be remoulded to certain degree through effort over a certain length of time.

In my opinion, the existence of E-learning styles is possible, but may not necessarily lead to a whole new camp of style constructs. First of all, apparently E-learning presents information and knowledge in a very different pattern from the traditional classroom teaching. Therefore, E-learning elicits a discrete style of thinking. As a result, E-learning may require a learner to not only use different or more sensory capacities (auditory, visual or tactile) at a time, but also to face a more comprehensive way of processing the more intensive information provided. Recently, after comparing learning through electronic texts and textbooks, Cartes-Enriquez *et al.* (2004, p.551) concluded that e-texts can transform students from 'horizontal linguistic reading' (typical in reading printed texts) to 'vertical cognitive reading' (necessary in reading electronic texts), and consequently students develop elaborate thinking skills because they are presented with different perspectives from different sources by e-texts. This probably explains why research has found concrete sequential learners perform better in a traditional educational setting while random learners cope better with non-linear computer-based learning environments. Secondly, neural connections in the brain are first formed among adjacent neurons to form circuits, and then there will be a whole neural network of interconnected adjacent and distant neurons, simple circuits and complex circuits. Consequently, when an input is taken in by different senses or a combination of senses through E-learning, neurons from different sites of the brain will be activated at the same time and new neural networks will be created to process this input (Elman 1996). In other words, a new learning path will appear to handle the input of different quality and quantity. For instance, Mitchell (2002) found a substantial increase in the number of Australian learners who had obtained certain dispositions and readiness for flexible delivery and online learning than previous researches.

Therefore, this thesis would like to argue that learners will inevitably develop different styles for E-learning as opposed to their prior traditional learning. However, this change may not

necessarily result in some new style conceptions. After all, learning style is largely based on thinking and personality styles which are not likely to quickly produce some new types that the theorists have not already discussed. Even if there will be some transformation of styles, it will take a considerable amount of time to create new neural connections in the brain. Moreover, the extent of the transformation will be influenced by learners' attitudes towards E-learning as well. If the learner rejects the form of E-learning, s/he may not adjust their cognitive and behavioural habits to learning with computers. Therefore, there may not be much transformation in this type of learners' styles and indeed they may find E-learning awkward rather than beneficial.

Nonetheless, this research did not set out to investigate E-learning styles in particular, but general learning styles instead. This was because: a) when the questionnaire containing the learning style instrument was conducted, the students had just arrived at the University. As CAL was still in its infancy in the country, it was assumed that these students had not had very much E-learning experience before they came to the university; b) the students' original learning style would still be a valid foundation for the possible formation of E-learning styles which was likely to take a longer time than the fulfilment of this research.

Part IV: Attitude

The published literature on *learners'* attitude toward computer assisted learning is relatively limited. Many researchers have noted that research in the UK and elsewhere, which examines the factors affecting computer use among students, has mainly focused on the institutional, departmental or staff perspectives, and tends to ignore the learner's perceptions on and attitudes towards the computer and E-learning (Hirscheim, Smithson and Whitehouse 1988; McMahon *et al.* 1999).

2.10. Conceptualization of Attitude

This study aimed to investigate attitudes towards E-learning, however, due to the limited literature on E-learning attitude measures, it was decided that understanding of the construct for *E-learning attitude* could be drawn on the contemporary theorizing in the more general area of the social psychological concept of 'attitude' (Hammond *et al.* 1992; Liaw 2002a).

2.10.1. Definitions of Attitude

The concept of attitude has been thoroughly established as one of social psychology's prime areas (Ostrom 1968). Attitude is often thought to be a response to an antecedent stimulus or an attitude object which may or may not be observable (Breckler 1984). The responses towards this object are visible, however, attitude itself is not directly observable or measurable.

Most of the more elaborate definitions of attitudes point out that they are predispositions that respond towards a specified object or class of objects in a characteristic, evaluative manner (e.g., Osgood, Suci and Tannenbaum 1957; Rosenberg and Hovland 1960; Smith, Bruner and White 1956). The most comprehensive definition is offered by Allport (1935, p.810):

> An attitude is a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related.

This definition encompasses more attributes of an attitude than almost any other definition because:

1) it recognizes the biological properties of attitudes, which many researchers have claimed to be essential in attitude formation (e.g., Eysenck 1970; Zajonc 1989).
2) it implies that attitude involves *learned* cognitive processes. This perspective is adopted by many attitude theorists (e.g., Ajzen 1988; Ostrom 1969; Rosenberg and Hovland 1960). However, Eagly & Chaiken (1993, p.3) suggest that:

> [T]he idea that attitudes are learned is best not included in the definition of the attitude construct. Instead, the definition of attitude should allow for the possibility that some attitudes are unlearned insofar as they originate at least partially from some biological base.

   In this respect, attitudes are very similar to personality in that they have both been treated as the relatively consistent underlying *dispositions* to explain human behaviour and contain *learned* and *socialized* elements. Though, attitudes are typically viewed as more malleable than personality traits. Like personality traits, attitude is a hypothetical construct that is not directly observable and hence must be inferred from measurable responses (Ajzen 1988). Personality and attitude are also interrelated when contributing to behavioural intentions or overt actions. Smith (1947-1948, p.519) proposes that a person's attitudes 'may be pressed into service for the indirect gratification of underlying personality striving'.
3) it recognizes the importance of antecedent knowledge/experience. The impact of antecedent conditions/experiences on the formation of attitude has been noted by many researchers (e.g., Bagozzi 1978; e.g., Jones and Clarke 1995; Ostrom 1969). The most cited comparison was Ostrom's (1969) research on university students' attitude towards church (a very common object) versus Kathandapani's (1971) study on black women's attitudes towards birth control (a controversial topic rarely discussed in public at that time). Such studies revealed that the greater quantity of, and the more diversified antecedent experience an individual has, the more convergence there is in his/her responses across attitudinal dimensions and in behaviour.
4) it points out the *interactions* between the above variables and the attitude object(s) or situation(s) in question.

2.10.2. Constructs & Measurement of Attitude

Although formal definitions of attitude vary, most of them seem to agree on the evaluative nature of attitude (Ajzen 1988). Much of the early work before the 1980s (e.g., Fishbein 1963; Fishbein and Raven 1962; McGuire 1969; Smith 1947-1948; Thurstone 1931; Triandis 1971) was concerned with two questions: What kind of evaluative process is undertaken when an attitude is formed? How can we assess the degree of such evaluation as to differentiate different attitudes? Research conducted to answer these two questions has been closely related to an interest in the relationship between attitudes and behaviour. From very early on, social scientists have assumed that attitude could be used to explain or predict human actions (Ajzen & Fishbein 1980). Therefore, the conceptualization of attitude and how it should be measured have been largely influenced by the findings about the attitude-behaviour relations. Two major models of attitude formation emerged as the measurement techniques and the attitude-behaviour interrelation findings evolved: the unidimensional model and the tripartite model.

The Unidimensional Model

It is not surprising that originally attitude was seen as a unidimensional attribute. Thurstone (1931, p.261) defines attitude as 'the affect for or against a psychological object'. It appears that people's emotional response—affect—had been the only index of an attitude in his theory. Indeed, 'affect' and 'attitude' were often used interchangeably (Ajzen and Fishbein 1980). This unidimensional position was strengthened when Thurstone (1931) brought about a major breakthrough in techniques for assessing attitudes—the Thurstone Scaling which reduced the measurement to obtaining a single score that would identify a person's attitudinal position on a bipolar affective continuum. The Thurstone Scaling methods enjoyed widespread use in attitude assessments. Therefore, for nearly two decades, attention was concentrated on theorizing and measuring of *affect* as the only component of the concept of attitude. Another influential unidimensional model was provided by Fishbein and Ajzen (Fishbein 1963; Fishbein and Ajzen 1975) who asserts that beliefs are the only mediators of attitude formation and change. To them, an individual's attitude toward any object is the evaluative aspect of his/her beliefs about the object.

The Tripartite Model

Although early research seemed to confirm the validity of unidimensional attitude scales, a few studies had produced alarming discrepancies between the attitudes assessed and the actual behaviour observed. The most well-known among them was LaPiere's (1934) investigation on racial prejudice which found its respondents' like/dislike of a certain race could not account for their actions towards that race. Mitchell & Olson's (1981) in-depth study of brand attitudes in marketing suggested that neither was belief the sole mediator of attitude formation. This had prompted some social scientists to contemplate the possibility of alternative dimensions of attitude which could account for such discrepancies (e.g., Allport 1935). Slowly, the construct of attitude has evolved into a tripartite model which hypothesizes three components of an attitude—affect, cognition and conation.

The Framework

McGuire (1969) points out that the trichotomy of feeling, knowing and acting as three facets of human experience can be traced back to the Hindus and to Plato's and Aristotle's time. Yet, 'attitude' was not conceptualized in terms of the tripartite model until the late 1940s (Breckler 1984). Smith (1947-1948) first distinguished the three aspects of attitude as affective, cognitive and policy-orientation. By the 1960s, the model had become the most prevalent in attitude and attitude change theories. McGuire (1969, p.155) concludes that the trilogy 'came early and stayed late' in the scientific study of attitudes.

The tripartite model hypothesizes that an attitude consists of three components: affective, cognitive and behavioural (conative) (e.g., Harding *et al.* 1954; Insko and Schopler 1967; Rosenberg and Hovland 1960; Triandis 1971). In general, the affective component represents a positive-negative emotional response, or 'a gut reaction' (Breckler 1984, p.1191). The behavioural dimension depicts behavioural intentions, overt actions and verbal statements about behaviour. The cognitive component includes beliefs, knowledge, perceptual responses and thoughts. The following figure shows how each component manifests itself and contributes to the formation of an attitude.

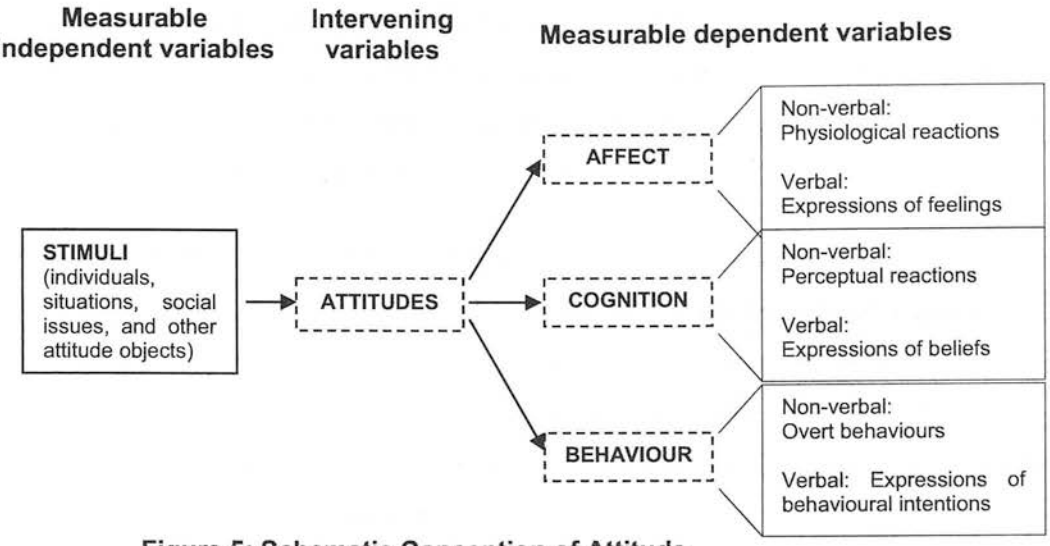


Figure 5: Schematic Conception of Attitude
(adapted from Rosenberg and Hovland 1960 and Ajzen 1988)

A core assumption underlying the tripartite model is that all three components vary on a common evaluative continuum (Allport 1935). That is, *affect* can vary from liking to disliking, *behaviour* from supportive to hostile, and *cognition* from favourable to unfavourable. Traditionally, the model is construed as implying that these three aspects must be in place in order for a true evaluative tendency to emerge and thus a complete description of attitude requires that all three components be assessed. It follows that measures of attitude based on only one or two components are incomplete and that using such incomplete measures to predict overt behaviour does not represent a fair test of the attitude-behaviour relationship (Ajzen and Fishbein 1980). However, some of the more contemporary researchers question whether attitudes must have all three of these aspects, either at the point of attitude formation or attitudinal responding. Eagly & Chaiken (1993, p.16) contend decidedly that it is *not* universal that people respond to attitude objects by cognitive, affective, and behavioural reactions. Hence, they do not conceptualize an attitude as having three constitutional *components*, but rather as mediating three *types of responses* sharing a 'synergistic relation' (ibid, p.201).

Nonetheless, an attempt to discuss attitude in terms of affective, cognitive and conative components does not mean these categories can be clearly distinguished except for analytical purposes. Instead, they inevitably overlap (Harding *et al.* 1954). Theoretically these three components are equally important for the structure of the attitude concept, however, historically, they have never shared the same

attention in empirical studies. Evaluation of the affective component has been central and the cognitive dimension has been advocated as the sole construct of attitude by some social scientists, while the behavioural component has perhaps received the least amount of systematic study.

Validity of the Tripartite Construct

As any other conceptual hypothesis, the tripartite model has been subjected to numerous tests and meta-analyses regarding its construct validity. The main concern is the verification of discriminant and convergent validity. That is, the model should manifest both sufficient convergence and distinction among the three components to be a valid construct.

Greenwald (1968, p.367) argues that the tripartite model would display substantial internal consistency strictly on the grounds that the components all derive from the experience of a single individual. Many attitudinal consistency theorists (e.g., Festinger 1957; McGuire 1966) believe that the desire for personal consistency is perhaps one of the most basic human motives—people strive to maintain evaluative homogeneity among the attitudinal responses they emit. Ajzen (1988) proposes that people would try to demonstrate this consistency because it is essential for a person's effective functioning in the society. Furthermore, some theorists even assume that human beings are *inherently* predisposed to think and act consistently since such an internal consistency is found to manifest itself in neuro-physiological dispositions (e.g., Eysenck 1950, 1970) and logical consistency (McGuire 1960).

Thereby, the convergence validity seemed to be a naturally built-in quality of this model. It is such a dominant feature that some researchers suggest any of the three components would serve equally well as an index of attitude (Fishbein 1966; Harding *et al.* 1954). Nevertheless, some more conservative proponents of the model explicate that the consistency of evaluative responses reflects the degree of central tendency on the continuum rather than complete homogeneity of responses (Ostrom 1969). Therefore, certain variability in responses should be acknowledged.

While common sense seems to expect a high degree of triadic consistency, the research findings on the discriminant validity of the three components have been mixed. For instance, when measuring undergraduates' attitudes towards the church,

Ostrom (1969) demonstrated evidence for strong convergent validity, but relatively low discriminant validity. Using the same statistical technique, Kothandapani's (1971) investigation on attitudes towards birth control confirmed the tripartite construct. In addition, higher intercomponent inconsistency (contributing to discriminant validity) was achieved in this study than Ostrom (1969) as a result of Kathandapani's purposeful use of the controversial topic (contraceptive usage) as opposed to Ostrom's topic of church. Both Ostrom's (1969) and Kothandapani's (1971) results were re-analysed by Bagozzi (1978) using a different statistical technique. The re-analysis of Ostrom's data produced sufficient discriminant and convergent validity, but Kothandapani's data only indicated the convergent validity. Breckler's study (1984) on attitudes towards snakes provided another explanation of the elusive discriminant validity of the tripartite model. He conducted two experiments: study 1 with snakes in presence and study 2 without snakes in sight. Study 1 lent very strong support to the tripartite construct, whereas, study 2 obtained higher intercomponent correlations. Henceforth, it seems, when the attitude object is unfamiliar or aberrant to the subject's customary context, the correlation among the attitudinal components will decrease considerably.

On the whole, the three components are still prevalently recognized as the synergistic dimensions of an attitude. However, no matter how much covariance they share, the components are not necessarily causative of each other. For example, an individual may cognitively acknowledge an attitude object is useful, but may still be reluctant to act favourably towards it because s/he may regard it too difficult to understand or use—due to the difference between *perceived usefulness* and *perceived ease of use* (Davis 1989).

The validity of the tripartite model has also been tested through its prediction of overt behaviours. The accumulating research findings over decades have shown a very mixed picture. Wicker's (1969) influential review of the relevant literature drew a clear conclusion that it is considerably more likely that attitudes will be unrelated or only slightly related to overt behaviours than otherwise (also see Doob 1947; Kothandapani 1971). Whereas, there are also researchers who firmly hold that attitudes and behaviour are related causally (attitudes cause behaviour, behaviour determines attitudes or attitudes and behaviour are related reciprocally depending on circumstances) (e.g., Gibson, Ivancevich and Donnelly 1979). Nevertheless, Ajzen & Fishbein (1980) contend that, while knowledge of a person's attitude can tell little as to how s/he will act

in a particular context, it can tell us something about the overall pattern of behaviour of this person. It is also clearly acknowledged that attitude measurement alone is not totally adequate as a predictor of behaviour (Tittle and Hill 1967). Other variables, such as personality and antecedent experience, have to be taken into account when understanding the attitude-behaviour relationship. The more contemporary researches have turned away from the mere verification of the tripartite model, but rather concentrated on the more granular relationships between these components and interactions between each component, behaviour, and other variables such as motives, personality, and individual differences (e.g., Ajzen and Fishbein 1980; Balram and Dragićević 2005; Huskinson and Haddock 2004). Therefore, Breckler (1984) suggests that attitude researchers should either measure each of the three components or specify which of the three is of major concern. For different research purposes, it seems worthwhile to study each of its components separately in some cases.

2.11. Development of Computer Attitude Scales (CAS)

The concept of computer attitude has been recognized by many researchers as a critical determinant in the acceptance and utilization of ICT (e.g., Al-Khaldi and Al-Jabri 1998; Hawk 1989; Liao 2005; Marcoulides 1991). For decades, researchers have been trying to develop instruments that can measure a person's computer attitude efficiently and accurately (see Appendix V for a list of the available CASs developed from the 1970s to present). It is clear that the development and use of CASs flourished during the 1980s. This probably has much to do with the fact that during the early stage of the information age, many people showed anxiety or even phobia for using computers, which became a crucial factor in (un)successful implementations of IT in both general public and educational contexts. With the 1980s being the watershed, CAS development has distinctively manifested two phases from the 1970s to the present.

2.11.1. 1970s—1980s

The earliest attempt to examine attitudes toward computers (ATC) was conducted by Lee (1970) who investigated 3000 individuals at the age of 18 and older across the United States. Using exploratory factor analysis, Lee identified two independent attitudinal dimensions: (1) beliefs that the computer is a beneficial tool of man, and (2) beliefs that the computer is a relatively autonomous entity which may be a superhuman

thinking machine that downgrades man's previously unique significance in the order of things. This bi-dimensional ATC construct has been confirmed by other researchers (e.g., Brock and Sulsky 1994), and was reflected in almost all of the more sophisticated computer attitude scales developed afterwards (e.g., Cambre and Cook 1987; Loyd and Gressard 1984; Loyd and Loyd 1985; Reece and Gable 1982; Richter, Naumann and Groeben 2000; Selwyn 1997).

As shown in the previous sections, attitude is predominantly conceptualized as consisting of 3 components: affective, cognitive and behavioural. Almost all of the published CASs are developed on the basis of this conceptualization. However, some of them try to encompass all three domains whilst others may focus on only one or two of the components. For example, Woodrow (1991) compared the attitudinal dimensions measured by four established CASs in the early times: Stevens' Computer Survey (1980, 1982, cited in Woodrow 1991), Griswold's Computer Use Questionnaire (1983, cited in Woodrow 1991), Reece and Gable's Attitude Toward Computers (1982), and Gressard and Loyd's Computer Attitude Scale (1986) (developed from Loyd & Loyd's (1985) CAS, cited in Woodrow 1991), and she concluded that, although the reliability of each scale was high, the scales appeared to vary considerably on the basis of the attitude domains that they measure:

- The *Computer Use Questionnaire* sampled attitudes belonging only to the cognitive attitude domain. It would be a useful measure for the sociological impact of computers.
- The *Computer Attitude Scale* was found to sample attitudes from both the affective and behavioural domains but none from the cognitive domain. Its use for computer novices is particularly recommended.
- The *Computer Survey* scale correlated well with all of the other scales. However, the reliability coefficient of this scale is relatively low.
- The *Attitudes Towards Computers* scale sampled the affective and behavioural domains of attitudes toward computers and was valid at the secondary and post-secondary education level.

The 1980s also saw a good amount of rigorous tests of the validity and reliability of the computer attitude measures, many of which were often developed without theoretical foundation (Kay 1993). As is self-evident in Table 1 in appendix II, Loyd & Loyd's CAS is the most used and tested until this date (e.g., Al-Khaldi and Al-Jabri 1998; Karrer 1991; Liaw 2002b; Nash and Moroz 1997). When first developed in 1984 (Loyd and Gressard 1984), this CAS contained 3 subscales, namely, Computer Anxiety, Computer Confidence and Computer Liking. Their study (Loyd & Gressard 1984) on

the reliability and factorial validity of the scale confirmed that the scales did measure 3 different factors which were also highly correlated to each other. However, the aforementioned Woodrow's study has pointed out that this CAS only examined 2 attitude domains: affective and behavioural, without the cognitive component. As a result, after some further testing, B. H. Loyd and D. E. Loyd (1985) modified it and added another subscale to the previous model: Computer Usefulness. Each of the four subscales in the Loyd and Loyd's version of CAS consists of 10 statements and uses a 6-point Likert scale measuring from 'strongly agree' to 'strongly disagree'. The main features of the four subscales are as follows:

- *Computer Anxiety*: refers to fear of computers or the tendency of individuals to be uneasy or apprehensive about current or future use of computers (Igbaria 1993). This subscale contains statements such as 'Working with a computer would make me very nervous', and 'Computers make me feel uncomfortable'.
- *Computer Confidence*: refers to the ability to use or learn about computers. This subscale consists of questions such as 'I don't think I would do advanced computer work', and 'Generally, I would feel OK about trying a few problems on the computer'.
- *Computer Liking*: refers to liking or enjoying working with computers. Typical items for this subscale are: 'I like working with computers', and 'I don't understand how some people can spend so much time working with computers and seem to enjoy it'.
- *Computer Usefulness*: refers to the degree of perceived usefulness of using computers for present and future work. Typical statements for this subscale include: 'Learning about computers is worthwhile', and 'I'll need a firm mastery of computers for my future work'.

If we examine the four subscales with regards to the concept of attitude, it seems that Computer Anxiety and Computer Liking represent the affective component, while items from Computer Confidence mostly indicate behavioural intentions and Computer Usefulness taps on the cognitive dimension. Therefore, the scale has been found a comparatively more comprehensive and reliable measure for computer attitudes.

Considering that many of the above instruments were limited by the fact that they were designed for either specific populations (e.g. university undergraduates) or specific purposes (e.g. the measurement of anxiety), Nickell & Pinto (1986) developed an instrument with more general applicability across settings and populations. Nickell & Pinto's CAS only categorized its items into those measuring positive attitudes (8 items) and those measuring negative attitudes (12 items), however, it is apparent that most of them tapped on computer anxiety and computer usefulness. Therefore, their model seems to cover responses from the affective and cognitive domain of attitude. Rainer

and Miller (1996) confirmed that the construct validity, test-retest reliability of this scale and its ability to predict computer usage was acceptable.

2.11.2. 1990s—Present

From the 1990s to today, the computer technology has evolved at a phenomenal speed and the use of personal computers has increased exponentially. ICT has become so ubiquitous in people's daily life that people's attitudes towards computers are no longer very differentiated; instead, it has become rare to find very negative or phobic attitudes nowadays, especially among young people. That is possibly why the number of CASs developed in this period is considerably less than previously.

Researchers of more recent times tend to develop CASs by adopting and customizing the items from those established instruments (often an amalgam of items from many different models), usually under a theoretical framework of attitude they identify with (e.g. a unidimensional framework with the affective dimension only or a multi-component model). For example, Roussos (2004) designed a CAS based on many of the aforementioned scales, which was purported to measure the affective, cognitive, perceived usefulness, perceived control and behavioural dimensions of attitudes. Interestingly, the factor analysis of the data in fact only revealed three factors which were identified by Roussos as *the confidence subscale, the affection subsale and the cognitive subscale*. In addition, most researchers consider 'confidence' a part of the general computer attitude measure (e.g., Francis and Evans 1995; Loyd and Loyd 1985; Shashaani 1994), but there are also researchers who treat *confidence* as a separate construct from *attitude* (Garland and Noyes 2005; Levine and Donitsa-Schmidt 1998).

Much fewer instruments have been developed to measure general computer attitudes after 2000. The more often investigated are users' attitudes towards very specific uses of computers, such as the Internet (e.g., Liaw 2002a; e.g., Liaw 2002b), or educational software (e.g. Dewhurst, Macleod and Norris 2000). However, such attitude instruments are no longer very structured or explicitly constructed under certain attitude theories. For example, Francis (1993) only considered 'affect' an indicative dimension of computer attitude. Lee, Hong and Ling's (2002) attitude scale was comprised of items that measured perceived usefulness and perceived ease of E-learning from seven existing instruments without identifying that these two dimensions apparently belong to the cognitive domain of attitude. Liaw, Chang, Hung and Huang (2006) proposed a 3-tier

model for assessing attitudes towards educational use of ICT, which seems to propose, not very explicitly, that E-learning attitude measures should include: individual experience; the affective; cognitive and behaviour intention components. On the whole, as far as E-learning attitudes are concerned, one can seldom find in research nowadays where a well-established traditional computer attitude scale was used directly, and often the measures were constructed with subscales labelled with different names, e.g., perceived control and ease of use, without explicit acknowledgement of the affective, cognitive and conative dimensions as extrapolated in general attitude theories (e.g., Garland and Noyes 2005; Liaw 2002b; Tsai, Lin and Tsai 2001; Yang and Lester 2003).

2.12. Individual Differences in Attitudes

While the construct of attitudes towards computers is mostly seen as triadic, the factors which may be causative of attitudes are manifold. Listed hereafter are some major individual differences in learners' attitudes towards computers and E-learning.

2.12.1. Computer & E-learning Attitudes

Early researches have produced very mixed findings on people's attitudes towards computers or E-learning. There were evidences that people held favourable attitudes towards computer uses in different areas while there was also a noticeable literature reporting individuals' anxiety, distress, suspicion, aversion or even fear about using computers (e.g., Henderson *et al.* 1995; Pope-Davis and Twing 1991). Rosen and Maguire's (1990) estimation then was that between one quarter and one half of all college students, business people and school students were 'computer phobic'. Lawton and Gerschner's (1982) review of the literature on attitudes towards computers and computerized instruction concluded that:

> [T]here is very little agreement on attitudes towards computerized instruction. Few researchers are willing to guarantee that students could learn or would like to learn on computers.

Even in the early 1990s when the IT revolution was starting to take off, despite a widely-felt enthusiasm for computer technology applications in education among administrative policy-makers and some educators (see Gardner, Fulton and Best 1993; MacFarlane 1998), learners still did not seem to embrace them so unanimously. Marcoulides (1991) compared the computer attitudes of two samples of college students from the U. S. and

the People's Republic of China and found that computer anxiety were present in both groups to a similar degree. Such anxiety or phobia is often associated with the loss of privacy or depersonalization when working on computers. The fact that the machine was nowhere near as responsive as another human being and the lack of social cues in E-learning environments was seen as problematic (e.g. McGorry 2002; Rice 1984).

Nonetheless, with the rapid evolution of the ICT industry and the advent of the Internet, computers can now offer much more powerful functionality and interactivity (both between the machine and the individual and between individuals from different locations). The drastic decrease of costs for ICT equipments has made the computer a common household appliance with which the majority of young people in the more developed countries grow up with—the so-called Net Generation or the 'millennials'. In fact, to them computers are not *technology* any more (Frand 2000). When computer use has become a norm, rather than an exception, people naturally start to have much more positive attitudes towards it and show much less awe or fear. For the Net Generation, interactions through computers are no longer seen as 'the opposite of personal and the antithesis of contact' (Windham 2005, p.5.7). As a result, more and more researches have revealed positive learner attitude towards E-learning at almost all levels and forms of education in the past decade.

At university level, for example, Broudo and his colleagues (1999) produced a longitudinal report on the results of the computer use and needs assessment survey of medicine and dentistry students over a 4-year period. Their findings showed that there was consistent agreement across classes with the statement that computers are an essential study tool, and there had been an increasing progression of computer use as part of students' normal study. Similarly, while continually innovating the hypermedia system for undergraduate biology students, Hutchings, Hall and Colbourn (1993) observed consistently positive and interested attitudes over three years. Galanouli & McNair's study (2001) reported that, when asked if they enjoyed using computer-based learning (CBL) material, 81% of the students answered positively and 65% believed that CBL made lessons more interesting. In fact, the MBA postgraduate students in McGorry's (2002) research were so positive about their completely internet-based courses that an overwhelming majority expressed they would like to take more online courses or recommend online courses to their friends and colleagues (also see Robertson *et al.*'s (2005) study with teacher education postgraduates). Kvavik (2005; Kvavik and

Caruso 2005) echoed that their students' negative perceptions about the course management system were minimal (only 6.6% negative or very negative). Overall, Oblinger (2003) noted that 79% of the American students said the Internet had a positive influence on their college experience (also see Jones 2002; Lenhart, Simon and Graziano 2001).

At secondary level, Ådnanes & Rønning's (1998) research in five secondary schools in Norway found that most students considered the network-based study more motivating than ordinary classroom teaching, and the students reported to have made frequent contact with fellow students 'both on issues of course content and on technical matters' (p. 153). At elementary level, Knezek, Miyashita and Sakamoto. (1993) compared children's computer attitudes in US, Japan and Mexico over a three-year period, and concluded that students in all three countries showed consistently favourable attitudes regarding computer importance and enjoyment. In adult education, Issroff & Eisenstadt (1997) claimed that the Open University's Virtual Summer School in 1994 was clearly a success and students who would have had little chance of communicating and working with other students and tutors evidently enjoyed the experience.

When it comes to students' attitudes towards CALL in particular, the limited publications available generally show very positive learner attitudes, with some showing more mixed reactions (e.g., Fox, Holder and Weaver 1998; Piper, Watson and Wright 1996). Holmes' (1998) survey concluded that 'there was overall agreement as to the benefits of CALL in language education and the enjoyment of using computers to learn English' (p.397). The real advantage of using technology in class was linked to the students' goals of 'communicating internationally' (ibid, p.397). This insight is shared by many other researchers. For instance, Leh (1999) carried out an experimental study with two classes of Spanish learners who were taught by the same instructor on the same days, but one class used e-mail to communicate with their Mexican pen pals while the other one did not. The comparison revealed that both the students and the instructor in the email group were in favour of using e-mail as it provided a language learning environment that motivated the learners, fostered learning, and encouraged communication. The follow-up study one year later still indicated the consistent positive opinions toward the computer-mediated learning. Thus, she concluded that although the participants lacked social cues, such as gestures, the communications through the online community they had created were just as beneficial. More recently, Smith, Alvarez-

Torres and Zhao (2003) have also reported that students rated learning English through computer-mediated communication (CMC) tools as highly favourable. Furthermore, Rosell-Aguilar (2004, p.220) also found that there were 'extremely positive perceptions of the Web' from the Spanish learners, it was their preferred method of obtaining information and they believed they were learning the language when using the Web.

Although many language teachers have observed that students generally have a positive attitude toward technology in the classroom, Chen (1996) warns second/foreign language educators to be more cautious about such enthusiasm:

> ...such attitudes and results may simply reflect the 'normal' outlook of most people who live in the Computer Age. ... all of the cultural signals being sent every day support the belief that technology is good, and that specifically computers are helpful in nearly every human endeavour. Even expressing the slightest doubts about the usefulness of computers is likely to result in one being labelled as a Luddite[1].

Therefore, Chen (ibid) advises educators and policy-makers not to rush into CALL without solid evidence of its benefits.

To summarize, on the one hand, students of the current generation are 'remarkably immersed in technology' and think of ICT as 'something akin to oxygen' (Brown 2001, p.70). They trust technology implicitly, and have generally positive attitudes towards use of computer technologies in education (Hartman, Moskal and Dziuban 2005; Omar 1992; Pope-Davis and Twing 1991). On the other hand, there are inevitably learners who still have negative feelings about computers. For instance, Shaw & Marlow (1999), in their research with undergraduate science students who were experiencing ICT use in their studies, found that a certain number of students were uncomfortable with computers, unhappy about the lack of personal contact, and would prefer to learn in a more traditional mode. This has intrigued some researchers to test whether this differentiation is related to students' different learning styles[2]. Even without the influence of learning styles, as the 'digital divide' is becoming more and more obvious (Hawkins, Rudy and Madsen 2003; Kaminski, Seel and Cullen 2003; Raines 2002), the increased use of technology in education is bound to put some learners, who are less

[1] The article is from an online source with no pagination.
[2] This will be further discussed in Section 2.12.4 of this chapter.

immersed in technology and thus more likely to have unconfident and negative attitudes, in a disadvantageous position.

2.12.2. Gender

It is very salient in the literature on computer attitudes that gender difference is the most probed, yet the most controversial, factor. Studies do not agree on whether males are significantly more confident in or keen on using computers or E-learning than females. The overview of the situation seems to show that, up till early 1990s, there were almost equal amount of findings of gender difference among both youngsters and adults (e.g., Farrell, Cuseo-Ott and Fenerty 1988; Heinssen, Glass and Knight 1987; Henderson *et al.* 1995; Nickell and Pinto 1986; Shashaani 1994) and non-difference (e.g., Loyd and Gressard 1984; Pope-Davis and Twing 1991; Zubrow 1987). Rosen and Maguire (1990) concluded that even though women did appear to be slightly more computer phobic than men in general, differences were neither strong nor consistent across various studies.

Since the 1990s, there appears to be more studies reporting no gender difference than otherwise. For example, Knezek *et al.*'s (1993) longitudinal study with elementary students from US, Japan and Mexico revealed no gender difference in computer attitudes. The ten-year-long IT survey with undergraduates in a UK university, reported by Gunn *et al.* (2002), showed that in the early years of the survey, women reported themselves as less likely to own computing equipment and generally less positive in attitudes towards the importance and relevance of IT to their studies and future careers. However, 'over the decade, these differences have gradually and completely disappeared. ... Male and female students have reached a point of agreement about the importance of computer technology in their work and study' (ibid, p.35). Lee *et al.*'s (2002) study with Malaysian college students also found gender would not affect their perceived usefulness and perceived ease of using computers. Furthermore, Ory, Bullock and Burnaska (1997) have cast doubt on there being any significant computer attitude difference between males and females in general. However, it seems that it can not be generalized over different educational or cultural contexts where the users' attitudes are examined (see Colley, Gale and Harris 1994; Shaw and Marlow 1999; Tsai *et al.* 2001). For example, Omar's (1992) study revealed that while gender difference in confidence and liking of computers did not exist among the US students he surveyed, it did exist among the Kuwait students.

Some academics argue that this controversy over gender variance is caused by not exerting control over other variables related to attitude, such as computing experience (e.g., Zubrow 1987). Whereas, Popovich *et al.* (1987) suggested that the gender differences in reactions to computers may not be true for all computer uses. Their study with undergraduate psychology students showed that females were more positive than males about certain technology applications. In a similar vein, Gunn *et al.* (2002) suggested that male students may enjoy competitive educational games and challenges while communicative and collaborative features may appeal more to female students.

This controversy still remains in the research up to date, but generally, the belief that the gender differences do exist at least in some computer usages seems to be more prevalent nowadays. Moreover, gender differences should not be treated in isolation from other factors such as learning styles and educational backgrounds (Gunn *et al.* 2002).

2.12.3. Computing Experience

Unlike the gender factor, computing experience is regarded almost unanimously in the existing research as a prime explanatory factor for computer attitudes. It is mostly agreed that as the amount of computer experience increases, the attitudes towards the computer accordingly become more positive.

Over decades, exposure to computers has been found to be positively correlated with users' attitudes in both academic environments (e.g., Liaw 2002a; Loyd and Gressard 1984; Shashaani 1994; Tsai *et al.* 2001; Woodrow 1991) and non-academic contexts (e.g. Hawk 1989; Henderson *et al.* 1995; Mahmood *et al.* 2000). Shaw & Marlow (1999) found that computer experience was positively correlated to the affective and cognitive components of attitude and thus had a 'halo-effect' on the attitude on the whole (also see Lee *et al.* 2002). In addition, Levine & Donitsa-Schmidt's (1998) study demonstrated that not only computer experience and attitude are positively related, but also they are mutually causal.

Not only the amount, but also the type of computer experience is linked to the positiveness of attitudes. Much research has suggested the importance of good *early* experience and the quality of support in terms of professionalism, friendliness and enthusiasm, which may create an 'inoculation' effect providing some protection against bad later experiences (Beckers and Schmidt 2003; Todman and Drysdale 2004).

Furthermore, computing experience has been found to have a strong direct or indirect effect on *behavioural intentions* (Igbaria 1993). Thompson, Higgins and Howell's (1994) study with 325 people from multiple organizations clearly indicated that experience was an important dimension in attitude-behaviour research. Al-Khaldi and Al-Jabri's (1998) questionnaire survey with undergraduate students confirmed that there is a significant positive relationship between the degree of computer experience and actual computer utilisation.

However, there are also a few studies that counter this generally accepted correlation between computer experience and attitude. For example, Pope-Davis & Twing (1991) found that computer experience was a significant factor on only the computer liking subscale, and their study did not support that the more computer experience leads to more positive attitudes. Moreover, Omar's (1992) study with Kuwait students, using Nickell & Pinto's CAS, found no significant correlation between computer experience and attitude at all, although such a correlation was found with the counterpart U. S. students. Garland and Noyes (2004b) point out that the significant correlation found in many previous studies have only small to moderate power in magnitude, indicating that the significance may have resulted from the large sample sizes or unsophisticated ways in which computer experiences have been measured.

Therefore, it seems cultural backgrounds, as well as the attributes of experience (e.g., quality, quantity, required or voluntary), all play a role in the relationship between computer experience and attitude. Even if a significant relationship is found between them, it should be interpreted with great caution.

2.12.4. Learning Styles

It has been discussed in Part II of this chapter that learners develop or adopt different learning styles that best suit themselves. Therefore, there has been a hypothesis that certain learning styles may have compatibility issues with computer assisted learning. Similar to the gender factor, the findings on the relationship between learning styles and E-learning attitudes have been mixed. For instance, Motter-Hodgson (1998) suggested that Divergers were 'social learners' who might feel isolated in an online environment and would need to have frequent contact with other learners online, while Assimilators would enjoy the individual focus of online learning. Buch and Bartley's study (2002) found that Convergers seemed to be the most receptive to computer-based delivery and

Assimilators the most resistant to this mode. Lee *et al.* (2005) suggested that FDs prefer guided navigation or linear-format representation but FIs prefer free navigation. Abouserie, Moss and Barasi's (1992) study found that FD students were more prepared to rely entirely on E-learning than FI students and that FD individuals performed better using program control while FI's preferred more learner control (also see Liu and Reed 1995). Nevertheless, there are also some research studies that have found no relations between styles and E-learning. For instance, Chapelle & Jamieson (1986) claimed that different cognitive styles predicted no variance on students' attitudes to, or use of, CALL lessons. Similarly, Hart's (1995) study with final year undergraduate students accessing reading materials and tutorial activities in the form of hypertext documents demonstrated no attitude difference with respect to their different learning styles as measured by Kolb's LSI. Shaw & Marlow (1999) used a modified version of Kolb's inventory, but reached the same conclusion as Hart.

2.12.5. Age

There have been mixed results from research into the effect of age on computer attitudes. Many researchers have discovered a negative correlation between age and computer attitude (e.g., Henderson *et al.* 1995; Igbaria 1993; Nickell and Pinto 1986). One common explanation is that the younger a person is, the more likely s/he has grown up in a computer culture where s/he has frequent contact with computers and thus has fostered a positive attitude towards computers. Nevertheless, there are also many studies that showed little evidence to support this popular myth (e.g., Al-Khaldi and Al-Jabri 1998; Omar 1992; Rosen and Maguire 1990). Interestingly, some longitudinal studies following the same cohort of young learners have revealed decreased *liking* of computers with increased age (e.g., Knezek *et al.* 1993). This is often explained as the ebbing of the 'novelty effect' of computer technology. However, Knezek *et al.* (ibid) found that their subject's attitudes towards the *importance* of computers did not suffer from a novelty effect. They suggested it was due to the 'chameleon effect' of computers which have the capability to 'grow with children' (p.200). That is, computers, while in constant evolution, can be adapted to serve different functions at different stages of children's lives.

2.12.6. Academic Levels

'Academic Levels' here refers to different academic years at tertiary institutions only (e.g. freshers, or seniors). Although very often learners' general computer attitudes do

not change significantly at difference academic levels (e.g. Al-Khaldi & Al-Jabri 1998; Omar 1992), interestingly, much research conducted with university students has found that there is a clear negative correlation between students' year levels and their E-learning attitudes. For example, Zubrow (1987) noted that positive affect declined over the freshman year. More recently, Shaw & Marlow (1999) found that first year students exhibited a more positive perception of ICT-supported learning than second and third year students. Slotte, Wangel and Lonka (2001) also found that their first-year medical students had a more positive attitude than the fifth-year students. Lee *et al.*'s (2002) study suggested that this decline of favourable attitudes could be explained by students' decreased evaluation of perceived usefulness and perceived ease of use for E-learning. It is suggested that whatever causes this decline in the liking for E-learning has much to do with many complicated attributes other than age.

2.12.7. Disciplinary Preference

'Disciplinary preference' refers to the subject areas that students choose to study. Generally, all the disciplines can be classified into two kinds: science & engineering (e.g. mathematics, mechanics), social science & liberal arts (e.g. philosophy, music, language). Many researches show that technical/science students tend to have more positive attitudes towards E-learning than their humanities peers (e.g., Liaw 2002a). However, Lee *et al.* (2002) found that discipline would not affect the perceived usefulness or the perceived ease of using computers. Therefore, learners' disciplinary preferences do not necessarily indicate the tendencies in their attitudes towards computers or E-learning.

2.13. More about E-learning Attitude

The findings exemplified above have shown that learners' attitudes toward E-learning are influenced by many individual factors, such as their acceptance of technologies and learning styles. However, there are two external factors that also play an important role in the formation of E-learning attitudes—the traditional learning mode and the quality of E-learning materials.

Firstly, even though generally learners' attitudes towards computer use in education have been positive, there is still an almost universally reported learner reliance on the traditional

face-to-face learning mode which can not be ignored in the evaluation of E-learning attitudes. Evidences are accumulating to show that E-learning should not replace, but be complementary to the traditional teaching and learning (e.g., Masiello, Ramberg and Lonka 2005; Yazon, Mayer-Smith and Redfield 2002). As Dewhurst *et al.* (2000, p.240) point out, although their students developed a favourable attitude towards a computer-based learning program and attained equivalent results as their traditional learning peers, they still retained a preference for a 'mixed economy'. It was reported that students do not want IT to be used 100% of the time, and appear to desire IT for 40~50% of classroom activities (Kaminski *et al.* 2003; Rickman and Grudzinski 2000). This is also in agreement with Garland and Noyes' (2005) finding that students' attitudes to books and computers were not significantly different. Therefore, the overall positive attitudes towards E-learning are not accompanied by a corresponding decrease in attitudes towards the traditional alternatives (Garland and Noyes 2004a).

Secondly, researchers often find learners' positive attitudes towards E-learning decrease as they progress in their academic levels or as they experience more E-learning (e.g., Masiello *et al.* 2005). Rickman and Crudzinski (2000. p.24) draw the conclusion from their experience that, after a period of time, 'even motivated participants can be turned off by overuse, or inappropriate use, of technology'. Indeed, this turn of attitude is often found to be linked with the fact that, apart from other factors such as technical problems and teachers' motivation, many E-learning materials appear to be electronic versions of the old, and probably boring, textbooks and teaching. When not realizing the full potential of technology with an innovative pedagogy, E-learning can 'in fact amplify instructional weakness as well as strengths' (ibid, p.30). In a word, technology itself does not guarantee an enhanced instruction or learning. Considerations of learner characteristics and an appropriate pedagogy, rather than the availability of state-of-the-art technologies, should be the primary concerns of E-learning development for any subject.

Part V: TESOL, CALL & Learners in Chinese Higher Education

2.14. The Overview of TESOL in China

In China, English learning usually starts from middle school, which means students have had about 6 years' formal English study before university or college. The English course in Chinese higher education, if not taught as a major, is termed as 'College English' (CE). It is a 2-year-long compulsory course in most institutions. After the course, students are expected to take the national English proficiency test CET 4 (in some institutions, even CET 6), and they usually have to pass CET 4 in order to graduate. When they enter a university, their English proficiency is similar to what Allum (2002) has described about his students: their level would be classified as false beginner or elementary in speaking, writing or listening ability, they had intermediate reading skills, but their communicative ability was very limited; their six years'study at school would have introduced all the basic grammatical structures of English, but few had had a native speaker teacher, and fewer had any substantial contact with foreigners.

As Widdowson (1979b) has noticed, students, especially those in developing countries, frequently remain unable to use English in actual situations or to understand its use in normal communications. This perception may still largely hold true in Chinese TESOL education. Students have been trained to achieve high level of 'competence' (not 'performance') through years of traditional grammar and vocabulary drills in primary and secondary schools, which is famously known as *dumb English* (Su 2006). Nonetheless, competent English users are currently in great demand since English serves as a medium for the international exchange of knowledge, information, culture, technology and business (Savignon & Wang 2003). The economic and cultural environment in the country has changed so much that English has become such an indispensable tool for both academic development and career opportunities (Gao 2006). Therefore, learning the *signification* of linguistic forms is no longer sufficient; learners need to be aware of the *value* conveyed by different forms as well to produce situationally, socially and culturally appropriate language. This has in turn become the impetus to the reform of CE education (Zhou 2004). The head of the Higher Education sector of the Education Ministry proposed in 2002 that CE education should move its emphasis from training learners' reading ability to a more comprehensive ability for

practical use of English. Hence, a new CE syllabus was enacted in 2004 which has placed listening and communication in a more prominent position. Not only is a communicative methodology much emphasized, but also the reform explicitly requires the integration of ICT use in CE education. The new teaching model are supposed to include the following charateristics (Qi and Wang 2004):

- Students are the centre of classroom activities. Teachers are organisers of the teaching, but essentially are providing a kind of service to students.
- Students can obtain more individualized learning through computer and network assisted learning systems.
- Diversified teaching methods, e.g., self-study online and tutoring, in classroom or through multimedia, in order to motivate students and foster autonomy.
- Listening and speaking are the focuses so as to prepare students to be competent communicators in their future career or social life.

Accordingly, Chinese TESOL teachers are encouraged to: a) use English as the medium of instruction; b) organise pairwork/groupwork on tasks; c) show tolerance of learner errors; and d) create a learner-centred classroom atmosphere to encourage learner participation.

However, CLT, a methodology originated in the west, may not be the most efficient kind of training for those who are not from, or need not be a part of, the western culture (Anderson 1993). Chinese TESOL teachers are known to be faced with problems and difficulties when practicing the communicative approach. The most critical issue has been the lack of quality and quantity of TESOL teachers (Huang and Shao 2001, 2002; Yang, Zhang and Xie 2001). As almost all the universities are enrolling a larger and larger number of students each year, not only has the TESOL teacher-student ratio reached 1:130, but also the majority of the current teachers are young graduates without sufficient teacher training or subject expertise (Sun 2006). Big class sizes and teachers' lack of communicative competence have resulted in the fact that teachers claim to practice CLT while in reality still dominating classes with their monologue talks and students' obedient listening (Anderson 1993; Sato and Kleinsasser 1999; Sun 2006). Neither have CE teachers many opportunities to attend seminars or in-service trainings which may help with their professional development (Cai 2006). In addition, the existing CET tests and the tight CE curriculum schedule force teachers to spoon-feed students as much as possible within a short time to ensure students' good performance in tests. Due to all these restrictive factors in Chinese CE context, the majority of teachers still follow a 'chalk and talk' teaching model (Ying, He and Zhou 1998) and focus on vocabulary, grammar and translation activities in class (Cai 2006). However, these negative influences of the CET tests have attracted so much attention that the Ministry of

Education were propelled to propose a reform on CET 4 and 6 in 2005. The reform calls for more open-ended testing items which may encourage students to enhance their comprehensive language skills and their ability to use the language contextually; and it even suggests higher institutions to cease including CET tests in their graduation prerequisites (Xu 2006). The effect of this testing reform on institutions' curricula and teachers' classroom methodologies remains yet to be seen.

2.15. The Current State of CALL in China

CALL is still in its infancy in Chinese higher education. Research on CALL issues only started sprouting in the late 1990s. As a result, the published literature on Chinese CALL research is very limited.

It is said that Chinese higher education has been utilising computers for foreign language education for almost 20 years, and CE teaching faculties in the majority of universities have been equipped with computer-based language labs or classrooms (Dong and Fu 2004), however, these equipments have mainly been used as typewriters or warehouses of test databases (Zha and Zhang 1999). As CE education entered a new millennium, the aforementioned syllabus reform put much emphasis on the utilisation of ICT in facilitating CE education, which resulted in 4 computer and network based CE teaching systems developed within a few months from four major publishers commissioned by the Education Ministry (Wang and Sun 2005). Nevertheless, during this transitional stage, CALL in China is obviously undergoing substantial 'growing pains'.

First of all, it is claimed that educators in the country generally have three types of attitudes towards CALL (Wang & Sun 2005):

1) over-optimistic about the efficacy of CALL: many institutions and teachers treat CALL as the only criterion for quality CE teaching, and therefore they often overemphasise the importance of using CALL courseware rather than the creativity of innovative human teachers.
2) Complete rejection to CALL: according to Liang and Jiao's (2002) investigation, nearly all the network-based courses in the country put substantial emphasis on the exposition and presentation of the teaching content and therefore are often identical with the sequential content of the corresponding paper-based textbooks. The overall poor quality of CALL materials available has caused disappointment, even rejection, among teachers.
3) Technology phobia: many educators do not like complicated technology use in their teaching, and therefore are afraid of implementations of CALL.

Even the CE reform policy-makers were holding the first type of attitude and promoted CALL as a means to relieve the shortage of English teachers and reduce current teachers' workload. However, in reality it has been widely acknowledged that CALL in fact increases teachers' workload (e.g., Dong and Fu 2004; Ma and Ai 2004; Wang 2003). Teachers often have to spend considerably more time making lesson plans and managing classroom activities which may involve many emergent situations because of the use of CALL.

Secondly, following the global theoretical trend underlying E-learning, Chinese CALL practitioners have also attached much importance to constructivism in their CALL research and modelling (e.g., Dong and Fu 2004; Jia 2003; Wen and Liu 2005). However, similar to CLT, the western concept of constructivism (especially social constructivism) has enjoyed substantial theoretical importance with Chinese teachers, but teachers' understanding of it and its application in actual pedagogies is far from sufficient. According to Dong and Fu's (2004) research on 129 college and university teachers, more than 60% of them did not hold a clear constructivism-based pedagogy as they seldom or never organised open discussions in class or assigned exploratory tasks for students to complete independently after class through multimedia and networks, and more than three quarters of their class time was teacher-dominated. Moreover, less than half of the teachers would hold positive attitudes towards students' alternative answers, innovations and risk-taking, nor would they encourage students to participate in design and evaluation of classroom activities and in-depth discussions. Some teachers only treat CALL as a means of feeding students with all kinds of study materials whilst seldom taking into consideration whether students are utilising and digesting these resources constructively (Yang 2005). Such practices often result in students' anxiety about the course, decreasing of interest or adoption of a pragmatic strategy that focuses on teachers' tutorial-related online resources only, rather than conducting more extensive study. Therefore, the implementation of CALL and its accompanying constructivism do not seem to have changed most teachers' classroom practice fundamentally. The only change is the blackboard being replaced by multimedia presentations, written lecture notes being replaced by downloadable electronic files, and teachers' standing on a podium being replaced by sitting in front of a computer in class (Sun 2006). Thereby, the quantity of teaching content might have been increased with the use of CALL, but teachers' teaching methodologies have not really changed as much as the reform policies aimed for (Li 2004), and this, to certain degree, also has to do with students' persistent traditional learning styles as we shall see in Section 2.16.

The ultimate goal of the CE reform is to make CALL an integral part of College English teaching. However, research shows it is still far from the reality. Students often report that their CALL experience is: textbook is textbook, courseware is courseware, lecture is lecture, exam is exam, and none of them are integrated with each other (Ma & Ai 2004). Therefore, the implementation of CALL seems to be still at a very superficial level in Chinese higher education. Many researchers have realized that this superficiality may have much to do with the fact that most universities still do not have a clear systematic assessment mechanism that can take into account students' performance in a CALL system or resulting from CALL use (Li 2004; Ma and Ai 2004; Rao, Hu and Yao 2005).

Because of the rapid growth of the IT industry in China and the CE reform, CALL development has been much accelerated and technically kept abreast with that of the rest of the world. However, as a result of jumping onto this E-learning bandwagon hastily, there is a lack of sufficient pedagogical considerations and organisational support in most development endeavours, let alone the great shortage of people who have expertise in both foreign language teaching and IT knowledge and shortage of sufficient and reliable IT facilities in most institutions. Therefore, in general, the CALL products available in the country have been noted as with much varied quality and unrelated to each other (Wang 2003), which indeed calls for a need to assess the overall effectiveness of CALL in China today from the perspectives of users rather than the technologies or policy-makers.

2.16. Chinese Learners

The often unsuccessful implementation of CLT and constructivist CALL is not only a result of the overarching national syllabus, exam system and institutional curricula, but is also inevitably linked with Chinese learners' learning styles. As styles are in part socialized (Jacobson 1993; 1997; Zhang and Sternberg 2002), students from the oriental culture have learning styles that differ distinctly from European or American students. There is a deep-rooted stereotype which portrays Chinese students as submissive, uncreative, rote learners. Many studies before the 21st century seem to support this stereotypical view. For example, Liu & Littlewood (1997) found that, because traditionally the teaching in China was dominated by a teacher-centred, book-centred method which emphasized rote memorisation, most students see knowledge as something to be imparted by the teacher rather than constructed by themselves. Anderson (1993) suggested that Chinese students tend to show great concern for precision and for not taking risks. Also, Oxford and Burry-Stock (1995)

discovered that Chinese students show some features of field-independent styles and prefer strategies such as memorization, sequenced repetition, planning, structured review, etc. Another typical image of Chinese learners is their reticence in expressing their views or raising questions, particularly if this may be perceived as expressing public disagreement with either their teachers or their peers (Chan 1999). They generally show 'a reluctance to participate in open discussions for fear of losing face by making mistakes', and tend to trust 'prescriptive decisions' (Anderson 1993, pp.474-475). Such learning styles often lead to teachers' modification of their originally communicative method, which, understandably, is sometimes a return to form-focused teaching (Savignon and Wang 2003).

Recently, more and more publications in China have shown that Chinese learners' learning styles, self-control and psychological traits are not yet adapted to some intrinsic requirements of computer assisted learning (Wang 2003). The most outstanding issue is that, after years of teacher-centred education, many learners often do not know how to study autonomously in an online environment. Students have reported that they would only do what teachers instruct them to do (Wang & Zhao 2006). They are very reliant on the teachers, and do not take the initiative to discover problems and find solutions, but rather follow the teachers' instructions just to complete assignments. Wang and Zhao's (ibid) study shows that 52.2% of teachers think the fact that Chinese learners can not do autonomous learning is the major reason for the unsatisfactory learning performance. Another noticeable mismatch is Chinese learners' lack of collaborative learning disposition. As is shown in the previous literature review (Section 2.5.2), computer-assisted collaborative learning is one of the most important features in western CALL practice. However, it is noted that Chinese students do not actively participate in online 'learning communities' (Yang 2005). The deep-rooted teacher-dominated learning model and the country's one-child policy are said to be the main causes for learners' unfamiliarity with interactive and collaborative learning processes (Dong & Fu 2004). On the whole, although learners are disappointed at the traditional teaching methods, they still seem to be more comfortable with listening and taking down notes mechanically, memorising vocabulary without trying to use them, preferring to do multiple choice exercises, staying in silence in class rather than speaking up or participating in group activities (Sun 2006).

All these characteristics are often attributed to China's being a collective culture, and to Confucianism which advocates a strong bias towards obedience, the importance of rank and hierarchies and the need for smooth social relations (also known as 'the importance of face')

(Ho and Crookall 1995; Jin and Cortazzi 1993; Littlewood 1999). However, Stephens (1997) has cautioned educators that 'the extent to which ideologies of collectivism are internalised in the thought processes of Chinese people in general can be overstated' (p.121). Kennedy's (2002) study with Hong Kong students also claims that 'Chinese learning styles' are far more subtle and complex than they are often made out to be. Common assumptions ... may be in need of reappraisal' (p.442). Indeed, some researchers have suggested that the current changes in China's social, political and economic conditions may now be legitimising a more individualistic culture, which will eventually manifest in education (e.g. Friesner and Hart 2004; Gieve and Clark 2005). For instance, Wang and Zhao's (2006) study found that 89.6% of learners believe they are *capable* of becoming more self-reliant. Therefore, some of the mismatches between modern CALL and Chinese learning styles have been recognised, and greater attention has been called for to teachers' conscious guidance and training in order for learners to truly benefit from CALL (Jia 2003; Xiao and Yu 2002).

Although the more recent studies start to show that some of the stereotyped images of Chinese learners may have become inaccurate, a majority of these studies sampled the Chinese students studying in regions other than mainland China. Chinese students may quickly adopt new strategies and practices as they are becoming less 'Chinese' and more 'Western' when studying in a different culture, but admittedly *in China* Confucianism still has a strong influence on the society (Chan 1999). Moreover, the current literature on mainland Chinese learners' styles tends to be anecdotal or subjective descriptions based on teachers' personal perceptions and experiences. Therefore, this research aimed to find out current Chinese university students' learning characteristics and how they may react to E-learning and CALL through more systematic research methods.

Chapter 3 Research Methodology

3.1. Research Settings

The study aimed to investigate the interface between technology and Chinese higher education with a focus on learners. The undergraduate students from the researcher's home university in mainland China—Zhejiang University—became the logical choice of the subjects for this study. The university is one of the oldest and largest comprehensive universities in the country with more than 40,000 full-time students from 6 branch campuses. The undergraduate students, around 24,000 in number, engage in studies of 110 majors in 11 disciplines. Like many other key universities in China, Zhejiang University has a very strong emphasis on science and engineering subjects. As a result, the majority of the undergraduate students major in science and engineering rather than humanities disciplines. As students were traditionally divided into two groups at their own will—science and humanities—in high school and were taught either mainly science subjects or humanities subjects before they were enrolled into universities, the subject of English might not be the best or most favourite one for many of the students at such a science-oriented institution as Zhejiang University.

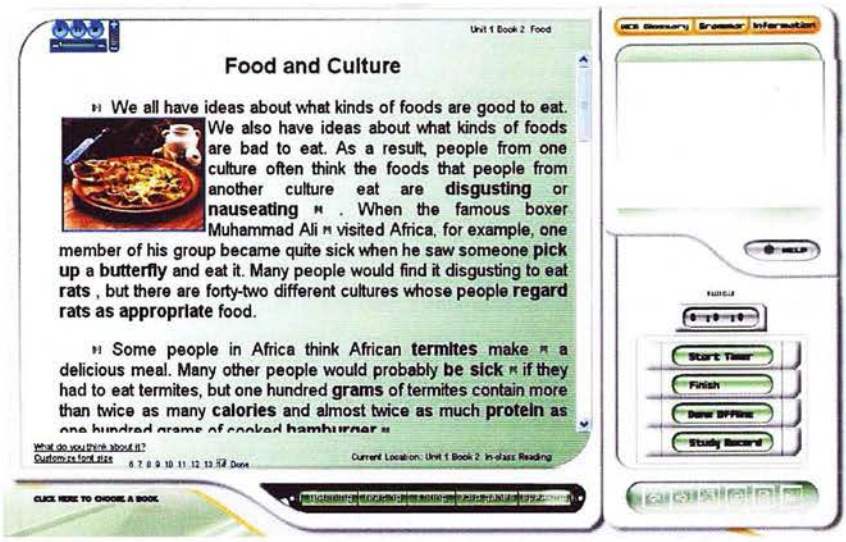
The University offered computer-based or online learning materials for many courses, however, most of them were in the form of discrete e-exercises or e-lesson-plans for students to download. Therefore, most E-learning resources were static, non-interactive and often more suitable for offline activities. However, a team of technicians and College English teachers developed a dynamic, interactive online learning environment (OLE) where students could conduct self-study of the College English course online. The system, namely 'NCE Online', was accessible from both the university intranet and the Internet. Teachers and students could log into this OLE through the interface shown below:

It was designed to facilitate both teachers and students through four major modules: 'NCE', 'English For Fun', 'Online Community', 'Reference' (in students' interface), and an additional 'For Teachers' module in teachers' interface.

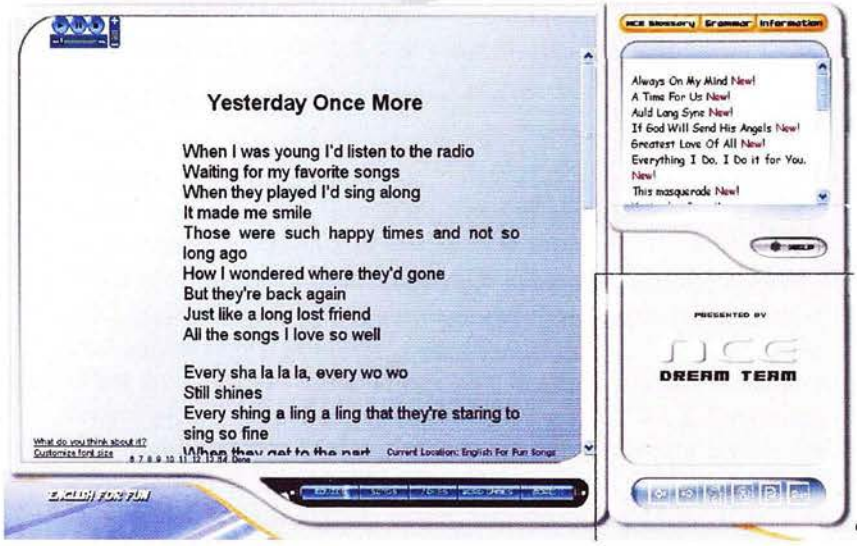
Students' interface after they log in

Teachers' interface after they log in

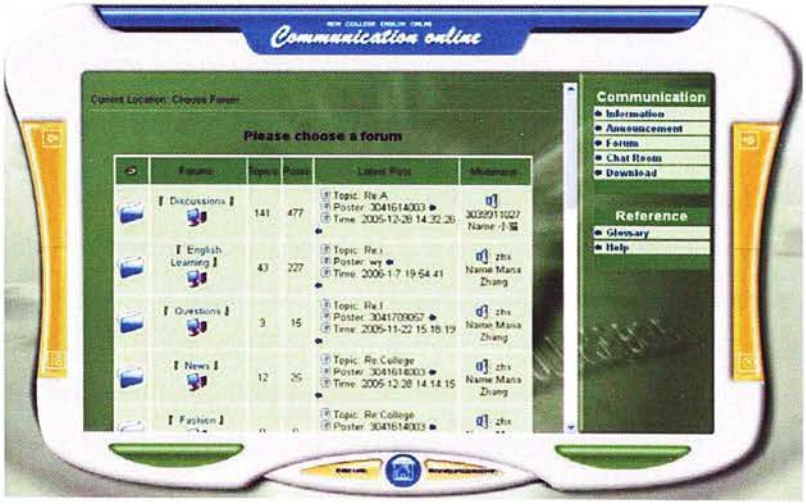
The 'NCE' module, containing all the reading texts and vocabulary from the coursebooks 'New College English', was primarily the e-version of the textbooks with which students could learn with more interactivity and ease than the paper version, such as hyperlinked annotations and voice-reading and translation of every sentence in the texts. 'English For Fun' was a module providing a fairly limited amount of extracurricular text, audio and video materials, such as film clips and jokes. 'Online Community' was an area where students could initiate or join discussions in text-based forums or chatrooms. There were different 'threads' of discussion students could participate in, and they could volunteer to become the moderator for a forum. 'Reference' was the area where learners could find referencing resources such as grammar and glossary. The 'For Teachers' section was designed to help teachers exchange thoughts and resources among themselves through online discussions as well as managing their students. The following are a few sample screenshots of these modules:



'NCE'



'English For Fun'



'Online Community'

The system was initially funded by and developed for the College English course in the College of Distance Education, hence its major objective was for learners to have a self-study environment without being in a classroom. Thus, when it was adopted by the College of Foreign Languages, it was not a must for either the English teachers or students to use it.

3.2. Research Questions

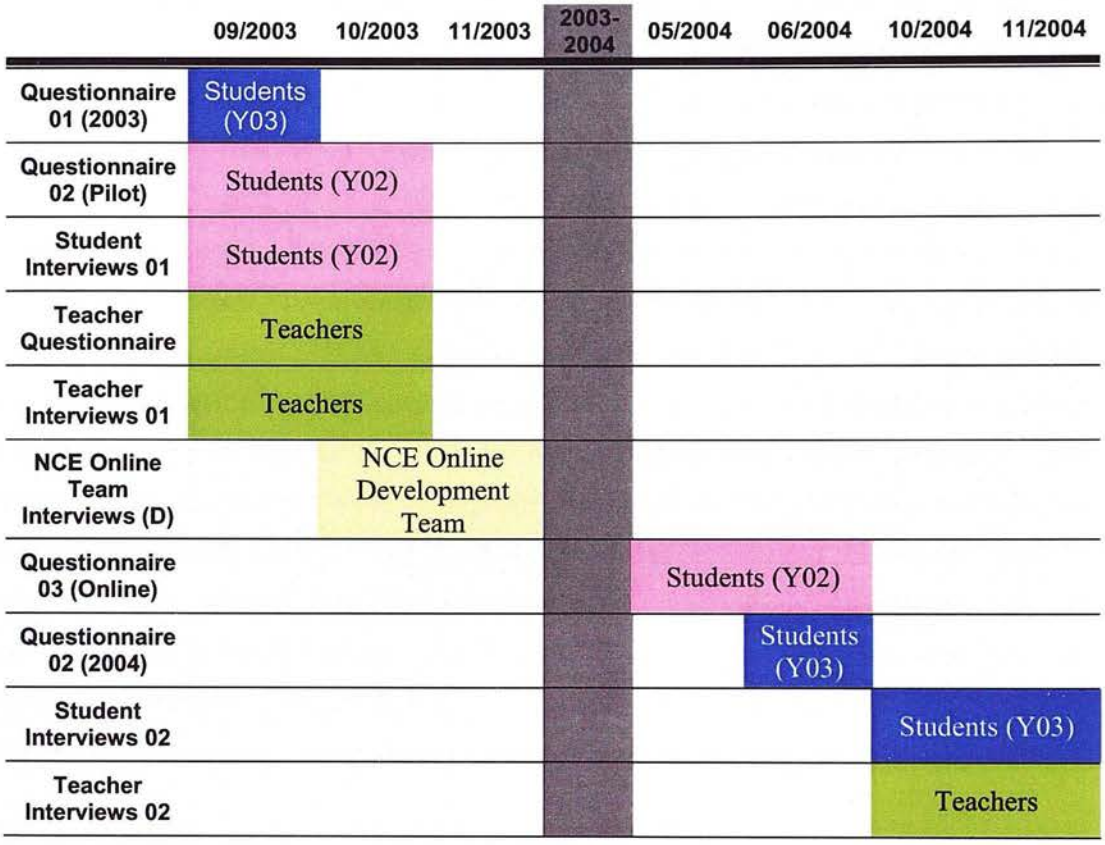
The previous chapter has shown that there are noticeable mismatches between CALL and the Chinese educational context (especially learners), and the general quality of the existing CALL implementations for College English teaching and learning in the country is not satisfactory despite the strong promotion of CALL by the Ministry of Education. NCE Online at Zhejiang University, being one of the four earliest comprehensive network-based English learning systems (mentioned in the literature review), could be the most appropriate example to illuminate the factors that were affecting the quality of Chinese CALL. Hence, the following research questions were proposed:

1) In terms of Chinese students' computing experiences and attitudes towards IT technologies, are they ready for E-learning in general and CALL for College English in specific?
2) What are current Chinese university students' learning styles? Are they compatible with both the intrinsic requirements of CALL and the particular ways in which their institutions implement it?
3) What are Chinese students' attitudes towards CALL? How do they utilise CALL in their studies? What do they need and expect of CALL for College English learning?
4) What are the other factors, besides learners' learning styles, that influence learners' attitudes and uptake of CALL?
5) How can a CALL system better accommodate Chinese students, and how can the effectiveness of such a system be improved through considerations of the factors revealed from this study?

3.3. Methods

The study was initially envisaged as a one-year longitudinal investigation from 2003 to 2004 so that students' computer and CALL experiences and attitudes could be compared after one year's study, and their learning styles could be correlated with their E-learning and CALL perceptions. It was decided from the very beginning that both quantitative and qualitative methods would be applied in that the researcher aimed to discover both the general patterns of the sampled population and the more in-depth, explicative causes behind such patterns. Therefore, survey questionnaires were utilised to provide a relatively large amount of quantitative data for generalization purposes, whereas individual and group interviews were

conducted to provide complementary qualitative data. All except one questionnaire were in a double-sided A3 paper format in Chinese, and the interviews were conducted either individually or in groups. The design of the instruments and the choice of target participants evolved along the whole research period. The following chart shows the timeline of the whole research schedule:



Hereafter, how each instrument was developed and what procedure and participants were involved will be described in detail (please refer to Appendix VII for complete copies of the student questionnaires in both Chinese and English versions).

3.3.1. Questionnaire 01 (2003)

The Subjects

This questionnaire was targeted at the newly enrolled undergraduate students in the year of 2003 (abbreviated as Y03 hereafter). The new students started their university study on the 8th of September. The College English course had a special feature: the classes were streamed according to students' proficiency levels; therefore, all the new students were required to attend a placement test a few days before their first day of study so that they

could be allocated to different classes when the new semester began. As matter of fact, this test had greatly influenced the number of participants the researcher was able to reach.

The sample size underwent a growth from when the questionnaire was first designed to when it was eventually conducted. When the instrument was first conceived, it was intended to be conducted online, located on the same server where NCE Online was hosted. Hence, the sample size was not definite, but predicted to be over 200 at least. At a later stage, when the researcher was discussing the implementation of the questionnaire with a senior colleague from the university, she suggested that the feedback rate of an online questionnaire would be very low and it would be better to choose a few College English classes to fill in the questionnaire in paper. Therefore, the researcher decided to target two classes at each of the four proficiency levels, which would be about 500 students in total. However, when back in China in late August that year, the researcher further discussed with the NCE Online project leader about the specific implementation procedure. The project leader suggested that, since it happened to be the time for the placement test and the researcher had decided to conduct the questionnaire in paper, it could be arranged that the questionnaire be handed out to all the students immediately after they had finished the test and be collected back by the teachers who were supervising the test. The researcher finally adopted this suggestion in that the consequent sample would become much more homogeneous and less biased than if it was picked specifically by certain standards. As a result, the sample size increased drastically from about 200 to almost the whole population of the freshmen that year which was 6,071.

The Instrument

This questionnaire was designed to investigate four main aspects of a student: 1) learning style; 2) computer experience; 3) English learning experience; and 4) computer and CALL attitude. Likert (1932) proposed the method of summated ratings which typically asks subjects to respond to each item in terms of a five-point scale ranging from 'strongly approve', 'approve', 'undecided', 'disapprove' to 'strongly disapprove'. This method has been found to have greater reliability and specificity than other major psychometric methods such as Thurstone scaling and Guttman scaling (Tittle and Hill 1967). Little wonder that it has since been most widely adopted in social psychology (Green 1954). Therefore, both learning styles and attitudes were measured by 5-point Likert scales from the lowest value 'Strongly Disagree' to the highest 'Strongly Agree'. In addition, demographic information, such as gender, age, college and hometown province, was collected, too.

1) E-learning & CALL Attitudes

As the researcher did not know yet at that point of time, whether these participants had had sufficient E-learning experience to be able to give meaningful responses, only a small number of tentative questions were asked to solicit subjects' attitudes instead of a complex full scale. As is shown in literature review Section 2.13.2, attitude scales does not need to have 3 components all in place to be valid. Therefore, only 'liking' (affect) and 'perceived usefulness' (cognitive) were measured in this instrument.

In addition, attitudes toward computers in general were investigated to serve as an indicator of attitudes towards E-learning. Many established computer attitude scales are (CASs) considerably out of date, for example, they often contain items concerning the novelty effect of ICT which is no longer a distinct trait of the young computer users nowadays (Selwyn 1997). Therefore, the scales for attitude measures in this research were devised by both creating new items and adapting items from classic CASs such as Loyd and Loyd (1985) and Nickell and Pinto (1986). On the whole, eight items were used to indicate students' liking and perceived usefulness of E-learning and confidence in computers. Another 15 items were measuring how important and useful the participants considered CALL to be to their English study.

2) Learning Style Scale

There are a considerable number of style instruments available as mentioned in literature review. According to John (1990, p. 66), researchers are faced with 'scales with the same name often measure concepts that are not the same, and scales with quite different names overlap considerably in their item content.' The reason that there has not been a single agreed-upon instrument to measure learning preferences could be that 'there has not yet been one that integrates all relevant individual differences' (Miller 2005, p.288). The literature review has shown that learning style can be seen as a subset of personality and thinking style while cognitive style is its core. Yet, most of the existing style instruments/inventories concentrate on one particular level of learning differences, such as measuring cognition-centred styles only, or more concerned about a person's overall personality styles. Miller (ibid, p.303) suggests that 'to avoid missing learning preferences that may be critical to evaluating the compatibility of computer-based instruction systems, perhaps future research should choose style instruments that

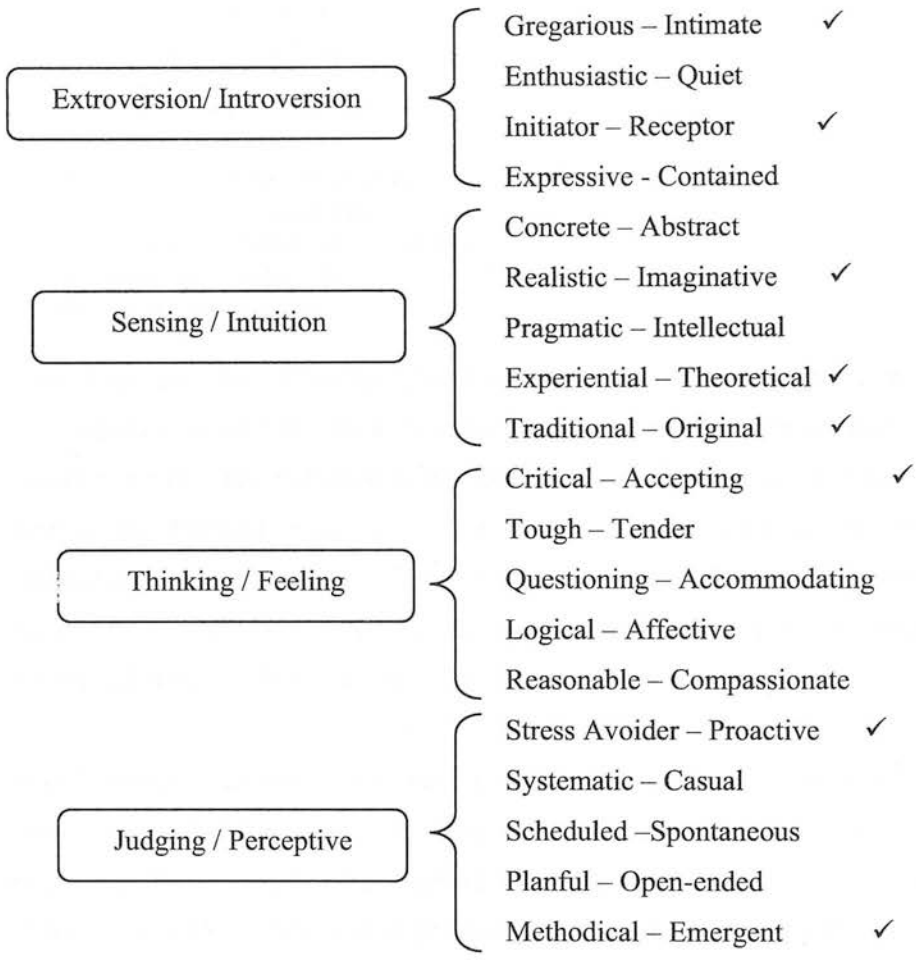
focus on more than two dimensions'. Therefore, in this research learning style is considered to consist of characteristics from three layers: cognitive, experiential and affective. In addition, certain traits, according to some researchers (e.g., Oxford 1990; Oxford, Hollaway and Horton-Murillo 1992), are particularly more relevant to both foreign language learning and E-learning than the others. For instance, some cognitive dimensions (e.g., sequential-global, perceiving-judging) and affective traits (e.g., tolerance for ambiguity) have been found in second language acquisition research to be crucial for successful/less successful language learning (Ehrman and Oxford 1989; Ellis 1989b; Oxford 1989; Ramirez 1986). It would be interesting to see if these traits are in any way related to learners' use of CALL materials.

The researcher had to decide whether to use a typological model (are people to be fitted into categories?) or a dimensional one (are they to be ordered along continuous dimensions?) for the style construct. Goldberg (1981, p.152) claims that 'in all probability a dimensional approach will prove more useful' and it is generally assumed that the dimensions have a bipolar structure. Therefore, this researcher conceptualized learning styles as bipolar dimensions on which an individual can show more or less tendencies towards one end.

Additionally, because the research subjects were Chinese undergraduate students, certain learning scenarios presumed in some style instruments did not apply to them, e.g., Chinese students are normally assessed by multiple-choice exams rather than essay writing or oral presentations at the end of a semester. In other words, the researcher needed a more tailor-made style instrument for the sake of both the academic subject concerned and the Chinese students in particular. Therefore, it was decided that the research should not conveniently rely on one existing style instrument, but devise a customized one based on a number of established style instruments.

After much assessing and comparing, the Myers-Briggs Type Indicator (MBTI) model was in the end adopted as the style framework for the following three reasons: a) it is a comprehensive model with more than 2 facets of style traits; b) it seems to have included all the particular cognitive dimensions this study intended to measure; c) MBTI is widely used and has been demonstrated with generally satisfactory reliability and validity. Therefore, it was assumed that an instrument based on this

model would probably guarantee better construct validity and reliability. However, the researcher reckoned the four dimensions of the MBTI—extroversion/introversion, sensing/intuition, thinking/feeling and judging/perceptive—were too general to be practical guidance for comprising style measurement items. Consequently, Johnson & Saunder's report (1990) which listed 5 subscales for each of the four categories was considered to be more informative guidelines for this study:



The ticked traits were the ones that were considered the most relevant to both E-learning and language learning. Some items for these ticked subscales were thus selected and adapted to be used in this learning style scale.

As the MBTI is largely viewed as having an emphasis on *personality* measurement, items from the following *learning* style tests which specifically focus on the *cognitive* and *experiential* dimensions were also consulted and adapted for this research:

- Kolb's LSI (1984)
- Reinert's ESLSI (1976)
- Soloman & Felder's ILSQ (2002)
- Shindler & Yang's Paragon LSI (2000)

Taking all these factors into account, this instrument for measuring individual differences in learning was therefore composed of items from these subscales:

- Gregarious – Intimate
- Initiator – Receptor
- Realistic – Imaginative
- Experiential – Theoretical
- Traditional – Original
- Critical – Accepting
- Stress Avoider – Proactive
- Methodical – Emergent
- High-Low Ambiguity Tolerance
- Inductive-Deductive
- Sequential-Global

In the literature, many learning style tests tend to use 2-option questions in order to force a subject to fall into one or the other category of a personal trait. However, the literature review has indicated that a dichotomised, ipsative scale would not be suitable for factorial analysis. In addition, as aforementioned, the researcher adopted a dimensional model of learning style measure rather than a typological one, Hence, the 37 statements about learning styles in this survey were all measured with 5-point Likert scales from 'Strongly disagree' to 'Strongly agree'.

This learning style instrument was essentially a self-report measurement. The design had called for several concerns over its validity and reliability from the beginning. First of all, Koob & Funk (2002) point out that the construct of learning styles deals with hidden mental processes which can not be identified by direct observation empirically. Style measurement items are notorious for their subjectivity which inevitably adheres to procedures that involve the attribution of personal qualities to oneself (Eysenck 1950). Thus, one item could be interpreted in quite different ways by different participants, or by the same participant under different circumstances. Nevertheless, Watson (1924, cited in Eysenck 1950, p.23) claims that:

> There is after all no scientific way of investigating the inner, subjective organization of a person's fundamental needs and drives except by

> studying 'the sum of activities that can be discovered by actual observation over a long enough time to give reliable information'.

Secondly, almost all the items for this learning style instrument were more or less modified and adapted from established western style instruments (English versions). They were translated into Chinese so that the participants could feel at ease completing the questionnaire and have as little misunderstanding of the items as possible. The modifications were made in order to make the items: a) more relevant to *learning* activities rather than general life behaviours; b) more relevant to *language learning* behaviours wherever possible; c) more natural and appropriate after being translated into Chinese. These modifications may have shifted the measuring focus while the translation may have distorted their original meanings even further. In turn, the participants' interpretations of the translated items may also vary from person to person. Hence, even though the instrument had been piloted with a small number of Chinese students based in Edinburgh, it had to largely rely on its face validity. As a result, the interpretation of the data from this instrument was again put to test in the questionnaires and interviews that were conducted after this questionnaire.

The Implementation

Questionnaire 01 (2003) was printed 2 days before the aforementioned placement test (the 4th September 2003) and was handed out to all the students immediately after the test. It was declared that it was a completely voluntary act and any student could choose to leave after the test without filling in the questionnaire. The questionnaire sheets were collected by the supervising teachers and returned to the researcher after the test.

3.3.2. Questionnaire 02 (Pilot)

This questionnaire was designed to be a pilot study for the subsequent Questionnaire 02 (2004) in the following year.

The Participants

Because Questionnaire 02 (2004) was going to target the Y03 students when they were entering their second year in 2004, the most comparable group for a pilot would be students enrolled in 2002 (termed as Y02 hereafter) and starting their second year in 2003. Hence, several classes of different English levels from the Y02 population were selected at random to fill out this questionnaire.

The Instrument

This questionnaire consisted of questions about students' computing experience, English learning experience and demographic information. It also included a scale measuring students' attitudes towards their CALL system—NCE Online—since it was assumed students would have had some experience in using this system after one year's study at the university. Totally 32 items were used on 5-point Likert scales to measure students' enjoyment with NCE Online, their confidence or anxiety for using computers and NCE Online, and the importance and helpfulness of NCE Online to their study.

The Implementation

After Questionnaire 01 (2003) was conducted, the researcher contacted several College English teachers who were teaching the Y02 students and asked for permission to conduct a questionnaire with their students. They kindly handed out the questionnaire and their students completed it during class time. The researcher was not in any of the classes when the questionnaire was being filled in, but collected the sheets from the teachers after each class.

3.3.3. Questionnaire 02 (2004)

This questionnaire was designed to be compared with Questionnaire 01 (2003) as a follow-up study. It was one of the most important instruments in this research.

The Participants

Since Questionnaire 01 (2003) covered almost all the 2003 freshers, the researcher only needed to select a relatively small number of the students from the same population for this second questionnaire. Six classes at different English levels were randomly chosen for this survey. As the students were asked to write down their student numbers for both questionnaires, those who completed both questionnaires were identified so that their data could be subject to longitudinal comparisons.

The Instrument

The questions concerning learners' computing and English learning experience and demographic data in this questionnaire were identical with those in Questionnaire 01 (2003).

Originally the researcher wished to use the items for CALL attitudes and perceptions from Questionnaire 02 (Pilot). However, both the pilot and student interviews revealed that the

majority of the students had not been actively using NCE Online during their first academic year. Consequently, it would not be meaningful to keep using the CALL attitudes items from the pilot study which were mostly NCE Online-specific. Nonetheless, the previous instruments found that these learners had not had very much computer and E-learning experience prior to their university study. Therefore, their under-use of NCE Online might have to do with their attitudes towards computer technology and E-learning in general. It was then decided that this questionnaire should include scales measuring learners' attitudes towards computer, E-learning and CALL in general.

With the data from Q02P and sufficient space in the paper layout, a full tripartite model of attitude was able to be used to measure computer attitudes through 4 subscales: computer liking, computer confidence, computer anxiety and computer usefulness. The 1st subscale usually seen in traditional CASs—'Computer Liking' was turned into measurement of liking for E-learning since the literature has indicated an almost universal favourable affect for computer technology itself among university students. The items used for this CAS were mostly from a similar instrument devised for the researcher's Masters degree research three years ago, which was based on the established CASs mentioned in the literature review. Some related items from Q01 (2003) that proved to be informative were again included here. This instrument also investigated learners' liking and perceived usefulness of NCE Online in particular.

The Implementation

The implementation of this questionnaire was very similar to Questionnaire 02 (Pilot). The English teachers of the 6 chosen classes helped conduct it in class and returned all the copies to a contact of the researcher's at the university who delivered them to Edinburgh by post.

3.3.4. Questionnaire 03 (Online)

Questionnaire 03 (Online) was an additional instrument which was not in the original research schedule. It was designed as a reaction to a fundamental change in the pattern of the second-year students' (Y02) use of NCE Online which resulted from a new policy enacted by the university in early 2004. The university policy required that one third of teaching and learning of all subjects should be done through online courseware. The College of Foreign Languages, therefore, started a trial of using NCE Online more often in class with Y02 students. This had changed the status of NCE Online dramatically: from an E-learning environment that students could choose to use voluntarily to one that students *had to* use in

class. The previous questionnaires have shown that NCE Online was not widely utilised among students, which resulted in the fact that the students were not able to give very meaningful description of what they thought of such a CALL environment. However, due to this new policy, the students' use of NCE Online had obviously increased, willingly or unwillingly. Therefore the researcher decided it was worth probing more into students' perceptions and the reasons behind their use or underuse of it as they became more familiar with the system now than previously.

The Participants

The questionnaire was originally intended for Y02 students only. However, because it was conducted online without any restriction, anyone could access it freely when they were about to log into NCE Online. Interestingly a fair number of Y03 students had completed it as well, obviously when they were accessing NCE Online on their own. Therefore, Questionnaire 03 (Online) will be analysed in two parts: one with Y03 students and the other without.

The Instrument

This questionnaire aimed to probe more into learners' use of computers for their English study, including both NCE Online and other CALL materials of learners' own choice. Most parts of the questionnaire were similar to Questionnaire 02 (Pilot) as it was targeted at the same group of learners. Questions of particular interest were: their perceived usefulness of CALL; reasons for using or not using NCE Online; their expected resources from a CALL system; and favourite English learning mode. A small number of items were also used to measure students' learning styles again for triangulation with the data from Questionnaire 01 (2003). A distinct advantage of this online questionnaire was that it was able to include many open questions for which the participants could type their answers in the blank boxes provided. Such text data, even though in large quantity, can still be easily recorded accurately and imported into data analysis software. Compared with Questionnaire 02 (2004) which also had an open question at the end, the students seemed to be much more willing to provide their opinions in this online questionnaire.

The Implementation

All the other questionnaires for this research were in paper format in order to achieve a higher return rate. However, Questionnaire 03 (Online) was designed to be conducted online because the above mentioned policy assured that many of the students would have to access some online learning materials in class from time to time. Therefore, an online questionnaire seemed to be a fast and economical solution whilst a satisfactory return rate could be

guaranteed as well. It was mounted onto the NCE Online server so that the students could access and complete it when they were about to use NCE Online. The questionnaire was set up inside the NCE Online system in such a way that a student could choose to either fill in the questionnaire and then log into NCE Online or completely bypass the questionnaire. A group of teachers who were teaching Y02 students helped with the implementation. Their classrooms were all equipped with computers for every student. Hence, they spared a few minutes from their classes and asked their students to fill in the questionnaire on their computers voluntarily.

3.3.5. The Student Interviews

At around the same time of the questionnaires, interviews were conducted with participants from the same population groups. In 2003, after the administration of Questionnaire 01 (2003), 5 groups of Y02 students were interviewed with the instrument 'Student Interview 01 (SI01)' while in 2004 after Questionnaire 02 (2004) 4 groups of Y03 students were interviewed with the instrument 'Student Interview 02 (SI02)'. Both groups were at the beginning of their second academic year by the time they were interviewed. Each group normally consisted of 4~6 students, and lasted from 30 to 60 minutes. Some interviews were conducted immediately after a class. The teacher of that class would ask everyone in the room if 5 or 6 of them would like to participate in an interview about CALL, and then the volunteers sat around a table to be interviewed. On the other hand, some interviews were arranged beforehand. The teacher of a class would have found the volunteers and then arrange for them to be interviewed 30 minutes before the lesson started. The interviews started with the researcher's self-introduction and brief explanation of the purposes of this research. The interviewees mostly tended to answer questions one after another, however, occasionally they would conduct some mini discussions among themselves. In additional, when an interesting issue came up in an interview, the researcher would pursue for further information on it, but due to time limitation, the digression usually would not exceed 5 minutes. After each interview, students were also given small gifts as a thank-you gesture.

SI01 contained 6 questions while SI02 consisted of 10 questions, some of which were similar to SI01. However because the interviews were conducted in a semi-structured manner, the actual questions and the depth of investigation varied from group to group. As complementary information providers, these two instruments tapped on the same main issues as the questionnaires: English learning experience, computing experience and attitudes, use of NCE Online and other CALL materials, effectiveness and expectations of NCE Online.

3.3.6. The Teachers' Questionnaire & Interviews

The whole research was centred around learners, therefore, the original design of the research was for students only. However, the researcher had several informal talks with some College English teachers when the first questionnaire was carried out, and discovered that the teachers' attitudes and behaviour had great influence on their students' experience in NCE Online and CALL. Therefore, it was decided that investigations on teachers were needed to understand students' behaviour more fully.

There were 83 College English teachers in the College at the time of the research. A questionnaire extending to one side of A3 was delivered to every teacher during their lunch break in the staff rooms and then collected by the researcher. The questionnaire consisted of questions about teachers' computing experience and competence, previous experience with CALL, attitudes towards and expectations of NCE Online.

Shortly after the teacher's questionnaire in 2003, 5 teachers were interviewed individually to obtain further information about teachers' experience with CALL and NCE Online. At the same time, the NCE Online project team leader and two other team members were also interviewed individually to reveal the whole process of developing NCE Online and their future directions. Then, in 2004 another 4 teachers were interviewed with a similar instrument in order to detect difference in teachers' attitudes and behaviour. Both interview instruments—Teacher Interview 01 (TI01) and 02 (TI02)—were semi-structured. The time and locations for teacher interviews were much more flexible than the student interviews. Most of them were interviewed when they were having lunch breaks, and the others were interviewed at their homes. There was no strict time restraint, therefore, interview lenghths varied from 30 minutes to around 2 hours depending on the interviewees' willingness to go into depth on certain issues. All the interviewees were the researcher's former colleagues, therefore, the interviews were all conducted in an informal manner where digressions from the original questions occurred frequently. The researcher also thanked all the teacher interviewees with small gifts at the end of interviews.

3.4. Validity and Reliability Issues

Due to the implementation of several questionnaires, each with over 30 questions, there was a large amount of quantitative data that needed to be analysed with different statistical techniques. Many statistical calculations and tests are based on certain assumptions by

nature, and thus their processes and results should be treated with caution to ensure true validity and reliability.

Special attention has been paid to the t tests in the quantitative data analyses. Different types of t tests were used to make comparisons between cohorts or different stages of one cohort. The underlying assumptions of t tests are: a) interval scales; b) normality of distribution; and c) homogeneity of variances. However, Hinton (1995) reassures us that t tests are robust so that even if the distributions are only vaguely normal the t tests are still likely to be valid and this is especially true for large samples (greater than 30). In order to increase the power of the tests, Hinton (ibid) suggests to choose one-tailed tests which can reduce errors of false alarm of significance, increase the number of participants and look for big effects which will reduce the possibility of failure to detect significance. The teacher questionnaire was conducted with 57 teachers while the sample sizes of the student surveys were all beyond 250. Therefore, the sample sizes were conducive for the validity of t tests used in the analysis. However, as the researcher did not intend to look for change in one particular direction, she still used two-tailed t tests but opted to set the significance level to 0.025 so as to reduce the chances of false alarms. Meanwhile, the eta square values were also presented to indicate the actual effect size of a significant difference. According to Cohen's (1988) guidelines, eta square=.01 can be interpreted as small effect, .06 moderate effect, and .14 large effect.

In addition, all the data from this research were of a self-reporting nature. Due to time and resources limitations, the researcher was not able to implement other research methods, such as testing or observation, to verify the validity of the data. Therefore, this research generally relied on the validation of consistency between participants' questionnaire responses and interviews over different times.

3.5. Ethical Issues

The conduction of the questionnaires and interviews called for caution regarding several ethical issues. Firstly, when the questionnaires were handed out, although the students were free to choose whether or not to fill in the questionnaires, due to Chinese students' traditional compliance with teachers, most students took part in the survey when asked. This might also suggest that the participants might produce socially desirable answers to the survey questions. Secondly, the selection process of the interviewees meant that the participants' anonymity

could not be strictly protected. The English teachers knew who in their classes took part in the interviews, although the interview data were kept confidential from the teachers. Further, the participants might view the interviewer as a friend to their teachers', thus their answers may not be unrestrained or completely genuine. Similarly, the teacher interviewees were the researcher's former colleagues, and they were aware that the researcher was in close contact with the NCE Online development team, therefore, their responses about CALL in general and NCE Online might have been constrained to certain degree as well. Some of these ethical issues are probably intrinsic in social science researches, but some are particular, or even inevitable, in this research context. The researcher was aware of them, and took them into account when interpreting the data.

Chapter 4 Questionnaire Analysis

The 1st Year Students (Y03)

All the quantitative data in Chapter 4 and 5 were analyzed using SPSS 12.0. As aforementioned in Chapter 3, wherever a Likert scale was used, value '1' represents the weakest or least positive while value '5' or '6' stands for the strongest or most positive in tendency, unless otherwise stated. Whenever the Pearson correlation statistics were presented, the superscript symbol '**' means 'significant at 0.001 level' while the symbol '*' means 'significant at 0.05 level'.

This chapter will start with an analysis on Questionnaire 01 (2003) (hereafter abbreviated as Q01 (2003)), then data from Q01 (2003) and Questionnaire 02 (2004) (hereafter abbreviated as Q02 (2004)) will be matched up and subject to a comparative analysis, and then data uniquely from Q02 (2004) will be analysed in Part III of this chapter, followed by a summary discussion in Part IV.

Part I: Questionnaire 01(2003)

4.1. Participants' Demographic Information

6,000 copies of the questionnaire were distributed to newly-enrolled students in 2003 immediately after they had taken the English placement test before their university study started. In total 5258 valid copies were returned. Most of them were identified as the first year students (N=5154) as expected, with a few students from the other academic levels (N=10) and some not providing their IDs (N=94). Apart from very few extremely young students (aged under 15), the majority of the students were aged between 17 and 20. They came from almost every province of the country, however, 59.5% of them were from Zhejiang Province where the University is located. The students' gender and academic disciplines distributions were shown in the following table:

Table 3: Demographic Data

Gender		Disciplines	
Female	**Male**	**Science&Engineering**	**Humanities&Arts**
N=1578	N=3575	N=4129	N=972
30.6%	69.4%	80.9%	19.1%

It was evident that the University was oriented dominantly towards science and engineering disciplines while humanities and arts participants were of a very small proportion. The strong disciplines bias was also correlated with the unbalanced male and female student ratio—there were more than twice as many males (69.4%) as females (30.6%).

4.2. Prior Computing & English Learning Experience

The students' previous experiences in both computing and English learning before they came to the university would inevitably affect their attitudes towards and perceptions of ICT use for their studies at university.

Computing Experience

Only the results of two basic questions concerning computing experience—home computer ownership and use frequency—were presented here, while the other aspects of computing experience will be presented in Part II of this chapter.

About half of the students (50.7%) had computers at home, and among these students the majority (83.5%) also had network connections (see Table 4 below). Table 5 showed that the percentage of the students for each of the four permission categories was almost the same between computer use and network use. This indicated that as long as the students could access the computers, they were able to use network connections as much as they wanted. Parental control did not seem to be of an issue as only 8.1% and 10.4% of the students needed parents' permission to access computers and networks respectively. In fact, the majority of them (68% and 64% respectively) could use computers and networks anytime they wanted.

Table 4: Computer & Network At Home

	Computer at Home	Network at Home
Yes	50.7%	83.5%
No	49.3%	16.5%

Table 5: Computer & Network Use Permission

Use Permission	Computer Use (%)	Network Use (%)
Cannot use at all	2.9	2.3
With parents permission	8.1	10.4
Limited time	21.0	23.3
Anytime	68.0	64.0

English Learning Experience

Before they came to the university, the majority of students spent more than 6 hours every week on English study, including class time and self-study time. They were asked to mark as many learning media as appropriate (as shown in Table 6) which they used mainly in their study: printed or paper-based materials, audio and video resources, broadcast programs on TV or radio, learning materials on CD-ROMs and the Internet, and extracurricular tutoring

or training. The percentage for every medium here was the ratio of participants who marked it compared to the whole population.

Table 6: English Learning Media

	Printed	Audio	TV	Radio	Internet	CD-ROM	Extra Training	Video
Percent (%)	96.4	92.0	49.0	36.0	23.3	22.9	21.7	11.1

Naturally, printed materials (e.g., textbooks) were used most commonly (96.4%). Audio materials apparently were as widely used (92%). All the other types of media shared considerably less popularity in their English study. Video materials were the least utilised. CD-ROM-based standalone learning software, the Internet and private tutoring/extra training courses were similar to each other, and were not used by as many people as TV or Radio. The popularity of these learning media would undergo dramatic changes within a year as will be shown in Part II of the chapter.

4.3. Computer Attitudes & CALL

Computer Liking & Anxiety

Overall, the students liked the use of computers in their study, with the median values of all the questions concerning 'Liking' positioned at 3.0 or 4.0 (on a 5-point Likert scale). Also, the students did not show much anxiety about using computer technologies; instead, the majority of them reported feeling very comfortable with computers (Mean=3.67; Median=4.0), and even if some computer applications were complicated, they would still like to use ICT in their studies (Mean=3.72; Median=4.0). However, at a micro level, we can see that the students had differentiated preferences for different usages of ICT. On the one hand, the students had quite high ratings for the proposition that ICT would make their courses more interesting (Mean=4.2; Median=4.0). On the other hand, to learn a subject completely through computer-assisted learning was a significantly less favourable idea (Mean=3.31; Median=3.0; $p<.01$). The students distinctly preferred classroom learning where they could have face-to-face contact with other people (Mean=3.58; Median=4.0). This indicated that although the students had good liking for the use of E-learning, they would still like to have classroom teaching and learning as their main form of study. Although the students had very positive attitudes towards E-learning as a supplementary resource, they obviously did not think the existing multi-media learning materials were more helpful than printed books (Mean=2.96; Median=2.0).

Perceived Usefulness of the Computer and the Internet

When asked about how helpful computers and the Internet could be for their English study, the students gave very high ratings to all the questions concerning ICT's role as a provider for learning resources, information, self-assessment facilities, communication and distance learning opportunities. All the means were between 3.79 and 3.98 and all the medians were at 4.0, all with negative skewness values indicating an obvious tendency towards the positive end of the scales. However, while the resourcing and communicative functions of ICT were rated as the most helpful, extra distance learning opportunities from other institutions were seen as least helpful.

Since these students had not started university study yet when they completed Q01 (2003), they were asked to speculate how important the following features of NCE Online would be to them: 1) physical flexibility (when and where to study); 2) cognitive flexibility (what and how to study); 3) individualised feedback; 4) communication with others in English; and 5) collaborative learning opportunities. While all the ratings were positively high (all medians at 4.0), the importance of each feature was still noticeably differentiated. The physical flexibility was rated the most important to them, while cognitive flexibility was only ranked as the third most important feature. More individualised and timely feedback was rated as the second most important. Interestingly, the collaborative potential of CALL environments (Mean=3.64) was rated far lower than the others (means between 3.95 and 4.05).

4.4. Learning Style

This questionnaire was centred around a learning style scale that consisted of 37 items which were subjected to a factor analysis to uncover the underlying patterns.

4.4.1. Factor Analysis of the Scale

The 37 items were first subjected to a scale reliability test. The Cronbach's Alpha Based on Standardized Items was 0.78, which indicated the scale was fairly robust. All the items were then subjected to principle components analysis (PCA). Prior to performing PCA the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of .03 and above. The Kaiser-Meyer-Olkin value was .82, exceeding the recommended value of .6 (Pallant 2001) and the Bartlett's Test of Sphericity reached statistical significance, supporting the factorability of the correlation matrix. Principal components analysis revealed the presence of nine

components with eigenvalues exceeding 1. An inspection of the screeplot revealed a break after the 5th component. Therefore, it was decided to retain five components for further investigation. To aid in the interpretation of these five components, Varimax rotation was performed. The rotated solution revealed a fairly similar number of strong loadings in each component. The 5 factor solution explained a total of 33.45% of the variance.

A closer study of the original items in relation to these 5 underlying factors revealed that:

1) Two statements did not load on any component, thus they were discarded as non-significant statements.
2) The items for each subscale the researcher set out to measure initially generally still clustered together, only that some of the subscales were possibly measuring the same underlying construct and thus were collapsed into five broad factors as a whole. After a careful study of the wording of all the remaining 35 statements, it was found that the five factors mainly reflected these learning styles:

Factor 1 Methodical—Emergent
Factor 2 Open-minded—Close-minded
Factor 3 Extraverted— Introverted
Factor 4 High—Low Ambiguity Tolerant
Factor 5 Proactive— Passive

More specifically, most items from the original Methodical-Emergent, and Inductive-Deductive and Impulsive-Reflective subscales fell into Factor 1. Factor 2 consisted of items from Original-Traditional and Imaginative-Realistic. Items from Gregarious-Intimate, Initiator-Receptor had high loadings on Factor 3. Items from High-Low Ambiguity Tolerant and Proactive-Passive subscales provided high loadings on Factor 4. Factor 5 consisted of items from such subscales as Critical-Accepting, Original-Traditional, and High-Low Ambiguity Tolerant.

Coincidentally, these factors, which resulted from completely different constructs, items and scales, corresponded surprisingly well with the well-known Big Five Factors in personality research. It is interesting to discover that the 5 components extracted from the data can fit well into Costa & McCrae's Five Factors Model (OCEAN).

The Big Five Factors		Factors in This Research
Extroversion	←→	Extroverted—Introverted
Neuroticism	←→	High—Low Ambiguity Tolerant
Openness to experience	←→	Open-minded—Close-minded
Agreeableness	←→	Proactive—Passive
Conscientiousness	←→	Methodical—Emergent

4.4.2. These Participants' Learning Styles

As shown in the nomenclature of the five dimensions revealed in the factor analysis, each of them was conceptualized as a continuum on which a participant could be at any point between the left end (e.g., methodical) and the right end (e.g., emergent). The label for the left end of each continuum was the index of a dimension, i.e., the higher the score, the stronger tendency towards the left end. As a group, these Chinese students manifested certain tendencies on the continua of these five dimensions.

The General Tendency

The item with the highest loading for each factor was taken up as the representative for that factor. The mean and skewness of these items were displayed in Table 7.

Table 7: Learning Style General Tendencies

Style Factors	Mean	Skewness
Factor 1: Methodical—Emergent	3.37	-.16
Factor 2: Open-minded---Close-minded	3.02	.16
Factor 3: Extroverted— Introverted	3.60	-.27
Factor 4: High—Low Ambiguity Tolerance	3.56	-.61
Factor 5: Proactive— Passive	2.92	.12

As the table showed, Factor 1, 3 and 4 all exceeded the midpoint 3.0 and had negative skewness values. These statistics suggested that the students were more likely to be methodical, tolerant of ambiguity and extroverted. However, as we shall see later, the extroversion indicator here may be problematic. Wilcoxon Signed Ranks Tests were conducted between Factor 2, 5 and the other 3 factors. The results revealed that Factor 2 and 5 had significantly lower mean scores than the other factors. It could be suggested that Chinese students may have relatively strong characteristics of being closure-oriented and passive.

Gender Difference

Significant difference was found between female and male students on all the factors. The difference on Factor 1, 2, 4 and 5 was at $p<.01$ level, but the difference on Factor 3 was not as strong ($p<.05$). The statistics indicated that female students were generally less methodical, extroverted or open-minded, but they were more passive and better at tolerating ambiguity.

Discrepancy in the 'Extroverted—Introverted' Subscale

This subscale contained four items which specifically measured students' preference for working with others in their study.

Table 8: Extroverted—Introverted Subscale

	Mean
Gregarious-Intimate 1	3.46
Gregarious-Intimate 2	3.45
Gregarious-Intimate 3	3.25
Gregarious-Intimate 4	2.27 (reverted)

The interesting finding here was the 4th item (Gregarious-Intimate 4) which resulted in a considerably lower mean score than the other three. While the other three statements were positive ones indicating extroversion, the 4th was a negative statement indicating introversion. Therefore, the score for this item was reverted, so that 1.0 represented 'Strongly agree' while 5.0 'Strongly disagree', which guaranteed the higher scores would still mean a stronger extroverted tendency. However, since its mean score was much lower than the other three, this item demonstrated a particularly strong introversion tendency. A further inspection of the four statements revealed that the first three statements all implied the tutors' interventions (working in groups in classrooms, and working collaboratively on tutors' assignments), whereas, the fourth statement did not specify any contextual settings. It was a rather general statement: 'I prefer to study alone'. Therefore, it seemed when they were not in a collective learning environment or not instructed to do groupwork, these students would rather work on their own than collaborate with others.

In addition, this probably explained why earlier the overall score of extroversion for this cohort was higher than normally indicated in the literature. Because these students were more likely to be passive and compliant to their peers or teachers, they demonstrated marked agreement to the first 3 statements which implied that they were *expected* to work with others. Therefore, in reality, if collaborative work was not an explicit requirement or encouragement, these students would feel more comfortable studying on their own. This will be further confirmed by the data from Questionnaire 03 (Online) and student interviews.

Part II: Questionnaire 01 (2003) vs Questionnaire 02 (2004)

According to the student ID numbers, 523 students with valid IDs were found to have participated in both Q01 (2003) and Q02 (2004). The following analysis was based on both questionnaires' data from this group of participants.

4.5. Computing Experience

Computer Ownership

It was the university's regulation that all students, except those native residents of the university city, should live in university dormitories on campus during semester times. One dormitory flat usually consisted of one room with 4 or more beds, writing desks, and an en-suite bathroom. Therefore, for most students, their dorms were their second homes for their undergraduate years, and it was very common for them to share private belongings in such intimate living spaces. The students were thus asked whether they owned computers in their dormitory both before they started their university study (in 2003) and after one year's study (in 2004). There were four common options in both questionnaires: 1) completely own a computer; 2) own a computer but let other students use sometimes; 3) do not own a computer, but can use a friends'/roommates'/home computer conveniently; 4) do not own a computer, neither can use anyone else's computer conveniently.

Table 9: Computers in Dormitories

Time / Ownership	Q01 (2003) (%)	Q02 (2004) (%)
No access	90.6	9.0
Use others	6.0	29.8
Let others use	0.7	27.3
Completely own	2.7	33.8

The overwhelming fact shown in Table 9 was that at the start of the academic year 90.6% of students did not own or have easy access to computers while in the end only 9.0% of students were still in that position. The students who owned and used computers exclusively for themselves increased from 2.7% to 33.8%. Together with the number of students who let

others use their computers, the total percentage of the students who owned computers has increased from 3.4% (2.7%+0.7%) to 61.1% (33.8%+27.3%).

Table 10: Computer Purchase Intention

Time / Purchase	Q01 (2003)		Q02 (2004)	
	Frequency	Percent	Frequency	Percent
Not buying	278	59.1	109	62.3
Buying soon	192	40.9	66	37.7

Ironically, although a vast majority of students did not have access to computers at the beginning, when asked whether they would purchase computers in the near future, more than half of them (59.1%) said they were not buying (shown in Table 10). This initial aversion to buying computers and the later rocketing increase in computer ownership suggested that the students might not have regarded computers as useful at the beginning but later realized its importance for their study and their daily life.

Table 11: 2003 by 2004 Purchase Intention Crosstabulation

Q01 (2003) / Q02 (2004)		Purchase	
		Not buying	Buying soon
Purchase	**Not buying**	79	44
	Buy soon	20	16
	Use others	10	2
	Total	109	62

Nevertheless, among the students who still did not have their own computers by the end of the year, 62.3% (shown in Table 10) decided not to buy computers in future. Table 11 showed that among the students who said they were not going to buy computers in 2003, 64.2% of them [79/(79+44)] remained not buying. Even among those who said they would buy computers in 2003 there were more students who decided not to buy in 2004 (N=20) than whose who wanted to buy soon (N=16). In addition, among those who used others' computers and still did not own a computer in 2004, 83.3% [10/(10+2)] decided not to buy in the end. This indicated that, if a student had not purchased a computer for him/herself after one year's study, it was not very likely that s/he would want to own one soon. The reasons for this will be explored in the student interviews.

Network Connection

When designing the question about network connections in students' dormitories in 2003, the researcher assumed the students would be either restricted to the university intranet or given access to both the intranet and Internet. However, it turned out that the university restricted network access at three levels and charged tiered rates: intranet (cheapest), intranet

& the national network, and intranet & the Internet (most expensive)[7]. Accordingly, in 2004, four options were put down for this question.

Table 12: Networks in Dormitories

Time / Network Access	Q01 (2003) (%)	Q02(2004) (%)
No Network	38.2	0.6
Intranet Only	6.8	5.2
Intranet&National	N/A	27.5
Intranet&Internet	55.0	66.7

From Table 12, we can see that the percentage of students without any network connection in their dormitories decreased drastically from 38.2% to 0.6%. While the percentage that had intranet alone more or less stayed the same (6.9% and 5.2% respectively), almost all of the students had got network connection beyond the intranet by the end of their first year (66.7%+27.5%=94.2%). Nevertheless, having access to different networks did not necessarily mean they were using them equally, as we shall see in the students' interviews.

Network Uses

Seven common uses of networks were listed for the students to mark which ones they mainly utilised: 'forum/chat', 'email', 'download', 'shopping', 'business', 'surfing' and 'game'. They could choose as many options as appropriate. The following figure is a bar chart showing the frequencies for each use both in 2003 and 2004.

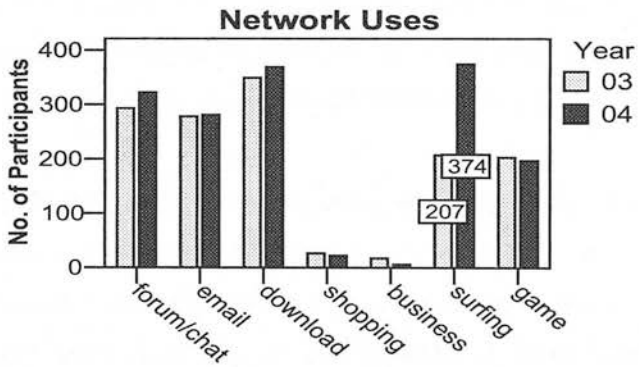


Figure 6: Major Uses of Networks

The overall pattern of network uses remained consistent on both occasions. The numbers of students who used networks for 'forum/chat', 'email', 'download', 'shopping', 'business' and 'game' hardly changed. However, the number for 'surfing' increased remarkably (from 207 to 374), which not only became the highest number among the 7 uses but also was the

[7] For more detailed explanation about the network system, please see the discussion of the interviews.

biggest increase over a year. A Chi-Square test indicated a statistically significant difference between 2003 and 2004 ($p<.01$) on 'surfing'. This implied that students kept using networks for 'forum/chat', 'email', 'download', 'shopping', 'business' and 'game' in much the same ways they must have been before university, but 'surfing' had become particularly more prevalent during this academic year.

Study Use & Recreational Use

The students were asked how frequently they used computers for study and recreational purposes. Because Q01 (2003) was conducted at the start of their university life, the researcher presumed the students were not using computers much for their study. Hence, the frequency intervals for this question in 2003 were: 'rarely', 'monthly', 'weekly', 'several times/week' and 'daily'. However, as shown in Table 13, although 'rarely' took up a fair amount (22.3%), the majority were using computers frequently every week. Therefore, in 2004, both questions on study and recreational use had a scale of weekly hours.

Table 13: Computer Use for Study in 2003 & 2004

Study Use	rarely	monthly	weekly	several times/week	daily	
2003	22.3%	4.8%	30.4%	39.4%	13.1%	
Study Use	**0 hour**	**1-2 hours**	**3-4 hours**	**5-6 hours**	**7-9 hours**	**≥ 10 hours**
2004	2.3%	31.2%	28.9%	20.7%	8.1%	8.8%

At the end of the first year, hardly anyone had not used computers for study every week. Table 13 showed that '1-2 hours' (31.2%), '3-4 hours' (28.9%) and '5-6 hours' (20.7%) all shared similar moderate percentages, but the students using computers for study purposes for more than 7 hours every week were much rarer (8.1%+8.8%=16.9%).

As for recreational use, the pattern had some obvious changes. The six options—'0 hour', '1-2 hours', '3-4 hours', '5-6 hours', '7-9 hours' and 'over 10 hours'—were given values from 1 to 6. The median value of the students' time spent on recreation increased from 3.0 to 4.0, which meant more than half of the students in 2004 were using computers recreationally for at least 5 hours a week.

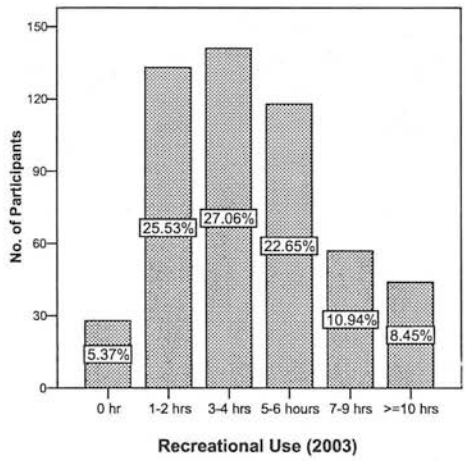


Figure 7: Recreational Use (2003)

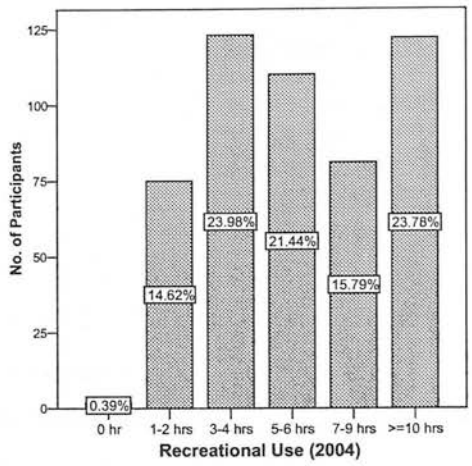
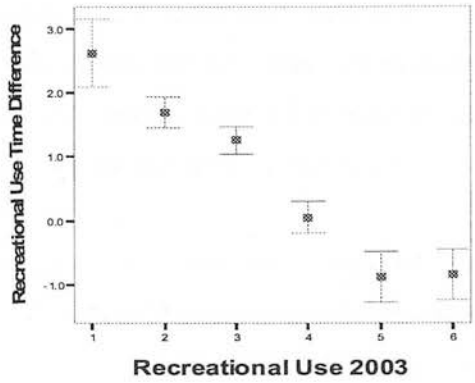


Figure 8: Recreational Use (2004)

Histogram distributions in Figure 7 and 8 presented an apparent shift towards the right end which indicated more hours of use. Comparing the two figures, we can see two distinct changes: 1) the students who did not use network for recreational purposes had become almost non-existent (from 5.4% to 0.4%); 2) the number of students spending more than 10 hours/week had increased from 8.5% to 23.8%. This suggested that a considerable number of students started to use networks for recreational purposes for much longer hours.

In addition, Figure 8 also showed an interesting bi-modal distribution. There was an increasing percentage of students from category 1 (0 hour) to 3 (3-4 hours), but then the frequency of students plummeted from category 4 (5-6 hours, 21.4%) to 5 (7-9 hours, 15.8%), and about a quarter of the participants then abruptly peaked at more than 10 hours/week. The bi-mode may indicate a threshold level of recreational use. That is, the students chose to use computers recreationally for less than 7 hours a week on average, but for those who had gone beyond this threshold, they were more inclined to engage themselves in substantially more hours of use.

Naturally, the researcher was intrigued to find out from which group of the participants this increase had come from. Figure 9 and Table 14 below were drafted to study how the participants had moved among the 6 categories of choices.



Recreational Use 2003:
1= 0 hour
2= 1-2 hours
3= 3-4 hours
4= 5-6 hours
5= 7-9 hours
6= ≥10 hours

Figure 9: Recreational Use Time Difference

Table 14: Recreational Use Time Difference

Recreational Use 2003 \ Time Difference		Minimum	Maximum	Mean	Median
1	**0 hour**	1.00	5.00	2.62	2.00
2	**1-2 hours**	-1.00	4.00	1.69	1.00
3	**3-4 hours**	-1.00	3.00	1.26	1.00
4	**5-6 hours**	-2.00	2.00	.05	.00
5	**7-9 hours**	-3.00	1.00	-.88	-1.00
6	**≥10 hours**	-5.00	.00	-.84	.00

In the figure and table above, 'Recreational Use Time Difference' referred to the result of the subtraction of a subject's chosen value in 2003 from his/her response in 2004. Therefore, if a subject chose the same category for recreational use in 2004, his/her 'Recreational Use Time Difference' value should be 0, whereas, if s/he chose a higher or lower-ranked category in 2004, s/he would get a positive or negative value. In other words, a score of 0 meant no change in time, a positive score indicated an increase while a negative score a decrease. The 'Recreational Use Time Difference' was mapped against the original 'Recreational Use 2003' categories in Figure 9. The table and figure revealed some intriguing information:

1) The students originally in categories 1, 2, and 3 in 2003 had all increased their recreational use considerably. Evident in Figure 9, the lower categories the students were originally in, the greater the increase was in 2004. There was hardly any change among the students who were in category 4 (5-6 hours/week). In Table 14 the mean of category 4 was .05, indicating a minute increase.
2) The students in category 5 (7-9 hours/week) saw a negative mean (-.88) and median (-1.0) which showed that a majority of these students reduced their recreational computing time in 2004.
3) The mean of category 6 is -.84 which also indicated a decrease in the time spent for recreational purposes among the students who used to spend more than 10 hours per week. However, as the median of this group was 0, on average this group of students did not cut down their recreational use as steeply as those from category 5.

In all, it seemed for most students, 5-6 hours/week recreational computing was a watershed of change: students who used to spend less time than that increased their use, those who had already been in that category only made a marginal increase in time, whereas those who had spent more than 7 hours per week for recreation were cutting down their time.

In addition, when we compare the study time and recreational time in 2004, we can see that many more students spent more than 7 hours a week for recreation (15.8%+23.8%=39.6%) than for study (8.1%+8.8%=16.9%). As neither of them had a normal distribution, a non-parametric test—Wilcoxon Signed Ranks Test—was conducted to evaluate the difference in time spent on study and recreational use in 2004. There was a statistically significant difference between 'Study use' and 'Recreational use' ($p<.01$). Therefore, during this academic year, the participants reported significantly more time spent for recreation rather than for study on computers.

Self-reported Computer Competence

As shown previously, during this academic year the students spent much more time using computers than before they came to the University. It was hence expected that their competence for some commonly used computer applications would have become higher. The participants were asked to rate their own computing skills for seven applications—word processing, web browsing, email, forum/chat, presentation software, webpage design and image editing. The skilfulness was measured on a 4-point Likert scale ranging from 'never used, 'need help', 'competent' to 'very competent'[8].

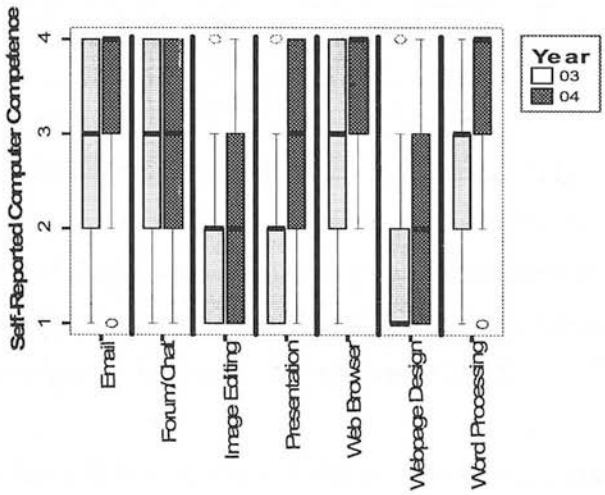


Figure 10: Self-reported Competence for 7 Applications 2003-2004

[8] The wording of these 4 options in Chinese used 'confidence' which actually meant 'competence' in Chinese in this particular context.

Overall, students' self-reported competence in all these applications did become better to different degrees. The boxplot above conveyed three important findings:

1) Web Browser, Email & Forum/Chat

At the beginning, there were students in all the four categories (from 'never used' to 'very competent') for these applications, but in the end the median lines of 'web browser' and 'email' had both risen from 3.0 to 4.0 and the boxes (the middle 50% of the participants) had moved up one point on the scale. This indicated that about 75% of the students regarded themselves as competent or very competent in using web browsers and email. This competence boost may have resulted from their more frequent use of networks, which corresponded with the earlier analysis on network use where 'surfing' enjoyed the highest frequency. However, the more intriguing was the non-change of their competence in using online communication tools such as forums and chatrooms. It was naturally expected that, as young people, these students would be using forums or chat programs extensively and thus become very proficient in using them. However, contrary to web browsing and emailing, the median for this category did not rise from its original 3.0 to 4.0. This could also be explained by the earlier analysis on network use which had not shown much difference in the percentages of students who used forums/chatrooms regularly between 2003 and 2004. Table 15 below is a crosstabulation of the use of forums/chatrooms on both occasions.

Table 15: Forum/Chat 2003 by 2004 Crosstabulation

		Forum/Chat 2004		Total
		No	Yes	
Forum/Chat 2003	**No**	120	110	230
	Yes	81	212	293
	Total	201	322	523

In Table 15, it was found that about half of the students (120/230=52.2%) who had not listed forums or chatrooms as their major network use in 2003 remained so in 2004, and 27.6% of the students (81/293) who had used forums/chatrooms in 2003 stopped using them frequently in 2004. Altogether 38.4% of the students (201/523) were not using forums/chatrooms as one of their main network uses in 2004.

It seemed that a fair number of students did not show much interest in forums and chatrooms even though their frequency of using computers had increased in general. On the contrary, over one quarter of the students who had used them often ceased to make much use of them. This may suggest that many students either dislike or find no need

for synchronous/asynchronous online communication. The literature showed that online communication tools have been very effective for enhancing both language fluency and communication skills. However, it seems they may not be as helpful for some Chinese learners who do not use them as much as their peers.

2) Word Processing & Presentation Software

The students' skills in using word processing and presentation software were reported to have improved considerably. Both of their medians increased to one level higher ('presentation' from 2.0 to 3.0 while 'word processing' from 3.0 to 4.0). Everyone had used word processing software by the end of the year while about 75% of all the students considered themselves proficient in using such software confidently. About three quarters of students were not at all familiar with electronic presentation packages in 2003 and only 8.1% stood out at 'very competent' level, but the median increased from 2.0 to 3.0 in 2004. Although there still were students who had never used presentation software in 2004, about half of the students had become competent or very competent in using them. Since the interviews revealed that these two applications were closely related to their English study (and presumably other studies as well), it was no surprise that students reckoned they had become much more competent in them after one year at university.

3) Webpage Design & Image Editing

'Webpage design' and 'image editing' are two slightly advanced applications which are not essential but can still be useful in certain areas of study. Usually only those with particularly high levels of skill or interest in the use of these technologies are likely to have acquired these skills. Therefore, they are very good parameters to signal computer literacy. Students considered their skills for these two aspects had also increased, but in a less steep manner than the aforementioned applications. The median for 'webpage design' was 1.0 initially which meant the majority of students had hardly used any software to design webpages. In the end, the distribution of students at all 4 levels spread out. There were even a number of students who regarded themselves as very proficient in creating webpages. 'Image editing' followed a similar pattern as 'webpage design', although it started at a higher level at the beginning (Median=2.0). The noticeable improvement of self-assessed competence in such applications indicated that the students had become much more computer literate within a year.

In order to find out whether the students' overall computing skills had improved, their scores for the 7 applications were summed up and the subsequent total scores represented their general computing competence. Therefore, the highest possible total score was 28.0 while the lowest score was 7.0.

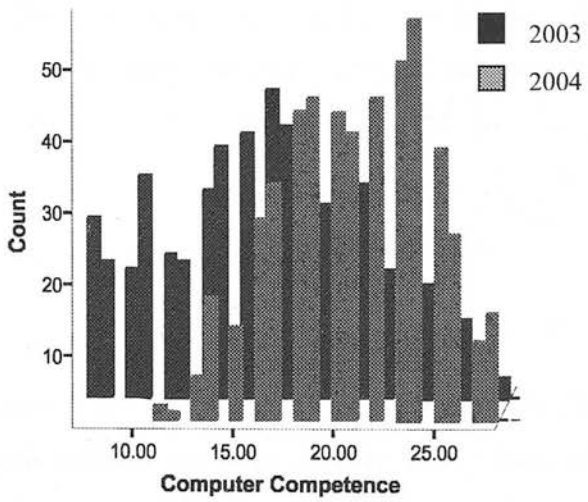


Figure 11: Self-reported Computer Competence 2003-2004

Figure 11 is a comparison of the histogram distributions of students' self-assessed computer competence scores in 2003 (in the back of the graph) and 2004 (in the front). Evidently, in 2004 the participants assessed their computing skills much higher in that the 2003 histogram started below 10.0 while the 2004 histogram started above 10.0. Furthermore, the 2003 distribution was clearly skewed to the left—the lower end—while the 2004 distribution was gathered around the higher scores on the right. A paired-samples t test was conducted to evaluate the difference over this academic year. There was a statistically significant difference between 2003 (Mean=16.04) and 2004 (Mean=20.92, $t(498)=-26.25$, $p<0.05$, eta squared=0.58). Therefore, during this academic year, students felt their computing skills had improved considerably.

Computer Confidence

'Computer Confidence' refers to how comfortable, or confident, students feel about using information and computer technologies in their life. It was measured by a set of statements, such as 'I believe with time and practice I will be able to use any software well', 'I feel comfortable working with a computer', and 'I feel apprehensive about using computers because I'm not very technically-minded', etc. Because Q01 (2003) only contained 1 item for measuring computer confidence while Q02 (2004) contained 10 items, it would not be reliable enough to compare them. However, another questionnaire, Questionnaire 02 (Pilot) with the second year students in 2003, had 3 similar items, and both questionnaires used 5-

point Likert scales measuring from 1 ('not confident at all') to 5 ('very confident'). As both the participants for Questionnaire 02 (Pilot) and those for Q02 (2004) were just entering their second year, it became comparable whether they were different in computer confidence at this similar stage of their academic life. It was found that the majority of the students from Q02 (2004) had a higher confidence level (Median=4.0) than those from Q02P (Median=3.33). It seemed younger students became more confident in computer technologies even when it was only 1 or 2 years age difference.

4.6. English Learning & E-learning

Liking for English Study

One question asked students to rate how much they liked learning English. It was assumed that their attitudes towards studying this subject could have a large effect on how they wanted to use computers for it.

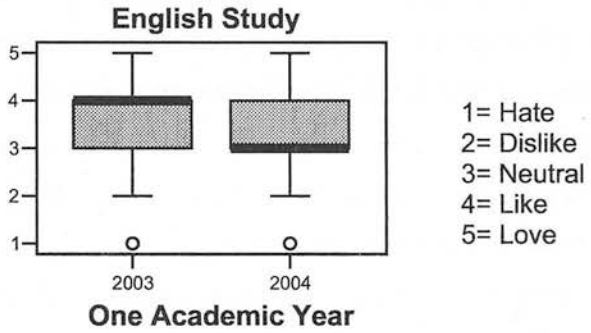


Figure 12: Liking for English Study

As shown in Figure 12, the students' rating dropped at the end of their first year. Initially about 75% of the students were above the midpoint 3.0 (Median=4.0) while in the end the general interest in English study decreased visibly (Median=3.0). As the histogram distributions of 'English Study Liking' at both times were relatively normal, a paired-samples t test was conducted to detect the degree of difference. Statistically significant difference was found between 2003 (Mean=3.73) and 2004 (Mean=3.47, $t(512)=-7.43$, $p<0.05$, eta squared=0.10). Therefore, after the academic year, students' enjoyment with English study had apparently diminished. The reasons for this decrease in interest will be tapped on in both the interview data and the comments from Q02 (2004) and Q03 (Online).

English Learning Difficulties

A student's English proficiency is traditionally assessed by his/her acquisition and fluency in four areas—reading, listening, writing and speaking. However, in order to assess more specifically, 'reading' was divided into 'vocabulary' and 'grammar'. Which one of these 5 aspects did these students find most difficult? Did the degree of difficulty change as their course progressed? The students were asked to rank these 5 aspects from 1 (easiest) to 5 (most difficult) in both questionnaires, and this measure was thus ipsative. On both occasions vocabulary and grammar were rated as relatively easy, listening was of medium difficulty, and writing and speaking were considered the most difficult.

Table 16: English Learning Difficulties

		Vocabulary	Grammar	Listening	Writing	Speaking
Mean	Beginning	2.44	2.61	2.86	3.47	3.64
	End	2.77	2.58	2.98	3.35	3.32
Median	Beginning	2.00	2.00	3.00	4.00	4.00
	End	2.00	2.00	3.00	3.00	4.00

The statistics in Table 16 showed that the median for 'Writing' dropped from 4.0 to 3.0 together with a slight drop in means. Even though the median for 'Speaking' did not change on the second occasion, its decrease in means indicated that it was on average considered less difficult than it had been in 2003. Although the medians of 'Vocabulary' and 'Grammar' stayed at 2.0, there was a relatively perceptible increase in the means of 'Vocabulary' (from 2.44 to 2.77). On the whole, the difficulties of their English study seemed to lie in the output of the language—speaking and writing. This corresponded with the students' expectations (expressed in Questionnaire 03 (Online) and the interviews) of a more 'English-friendly' environment and more opportunities to practice using the language.

Helpfulness of E-learning

Literature suggests that the most commonly recognized benefits of computer-assisted learning are: 1) instant feedback, e.g., when a student takes a self test on a computer, s/he can get immediate results or annotations; 2) self-paced learning—students can choose what and how fast they want to study; 3) flexibility—students can choose when and where to study; 4) efficient communication with peers; 5) efficient communication with tutors; 6) collaboration with others—students can share ideas or work on projects together; 7) distance education—students can take advantage of learning opportunities provided by other institutions or organisations. The students were asked to rate how useful they considered these characteristics were to them through a 5-point Likert scale ranging from 'not helpful' to 'very helpful'.

Table 17: E-learning Helpfulness

E-learning Features	Mean	Median	Skewness
Instant Feedback 01	3.89	4.00	-.65
Instant Feedback 02	4.04	4.00	-.88
Flexibility (Time/Place) 01	4.05	4.00	-1.07
Flexibility (Time/Place) 02	3.86	4.00	-.80
Self-Paced Learning 01	3.99	4.00	-1.10
Self-Paced Learning 02	3.65	3.50	-.36
Tutor Communication 01	4.04	4.00	-1.03
Tutor Communication 02	3.64	4.00	-.41
Peer Communication 01	4.02	4.00	-1.17
Peer Communication 02	3.56	4.00	-.31
Collaboration 01	3.64	4.00	-.82
Collaboration 02	3.40	3.00	-.23
Distance Education 01	3.86	4.00	-.36
Distance Education 02	3.35	3.00	-.26

Table 17 listed the 7 features according to their scores in 2004 from the highest to the lowest. Most of them were considered to be helpful at both times as they all had negative skewness and medians at or above 3.0. This indicated that the students' opinions were skewed to the positive end. However, what is worth noticing is that the mean values of all but one trait ('Instant Feedback') from Q02 (2004) had more or less decreased. Wilcoxon Signed Ranks Tests confirmed that, regarding the helpfulness of all the 7 traits, there was significant difference before and after the students had experienced E-learning at university ($p<.01$).

In addition, the median ratings for 'Collaboration' and 'Distance education' had fallen to 3.0. Compared with other medians overwhelmingly positioned at 4.0, this score of 3.0 seemed to be fairly low. The means of 'Collaboration' from both times were lower than the other traits. Wilcoxon Signed Ranks Tests found that 'Collaboration' was significantly different from the other traits in Q02 (2004) except 'Distance Education'. In other words, 'Collaboration' seemed to be deemed significantly less useful than all the other traits except 'Distance Education' which shared the lowest ratings with 'Collaboration' on both occasions.

Online Communication with Tutors & Peers

With respect to students' liking for online communications with tutors or peers, they also showed an interesting change over the year. They were asked whether they would rather talk to teachers face-to-face or online for study matters, and whether they would prefer to make suggestions or express opinions to their peers online or in front of the whole class. As is shown in Table 18, students' preference for online communication with tutors increased,

while preference for online communication with peers visibly decreased. Furthermore, in 2004, the mean score of tutor communication was higher than that of peer communication.

Table 18: Online Communication with Tutors & Peers

Online Communication	Mean		Median	
	2003	2004	2003	2004
Tutor	2.99	3.38	3.00	3.00
Peers	3.43	3.10	4.00	3.00

A paired-samples t test then found that in 2004, the students showed significantly more preference for communication with tutors online than with peers. The reasons why the students showed such a preference for communication with tutors online will be explored in students' interviews.

4.7. Individual Differences

Individual differences, such as gender, academic disciplines and learning styles, were found to be related to students' computing experiences and their perceptions on E-learning.

4.7.1. Gender Difference

As mentioned in Part I of this chapter, male students outnumbered female students considerably in this university by more than double. This cohort of participants reflected a similar ratio: 176 females and 347 males.

Gender & Computer Ownership

As shown earlier in this part, questions about whether or not students owned computers in their dormitories were asked in both questionnaires, and whether the non-owners would purchase computers in the near future was queried in the second questionnaire. The following crosstabulation tables showed the frequencies of male and female students on these two matters.

Table 19: Computers in Dormitories by Function of Gender

		Computer Ownership (2003)			Computer Ownership (2004)		
		No	Yes	Total	No	Yes	Total
Gender	Female	171	5	176	66	110	176
	Male	330	13	347	137	210	347
Total		501	18	519	203	320	523

Table 20: Purchase by Function of Gender (2004)

		Purchase		Total
		Not buying	Buying soon	
Gender	Female	34	25	59
	Male	75	41	116
Total		109	66	175

Three Chi-Square tests were conducted regarding the above tables. That is, the ownership difference between the two genders in 2003 and 2004, and the purchase intention difference in 2004. No statistic significance was found between male and female students in any of the tests. Even though there were nearly twice as many male students as female students, their computer owning likelihood did not differ. Neither did their intention to purchase computers, if they had not already owned one. Hence, in this university, male and female students seemed to have the same need and ability to own computers. Also, among those who still did not have a computer in 2004, male and female students shared a similar inclination to purchase or not purchase a computer in the future.

Gender & Recreational Use

The previous analysis has shown that the students noticeably increased their recreational use of computers over one year. However, did the male and female students spend equal amounts of time on computers and networks for recreational purposes? As the data distributions of recreational use from both questionnaires were not quite normal, Mann-Whitney U Tests were used to detect the difference between male and female students. At the beginning of their university life, there was no difference between male and female students ($p>.05$). However, by the end there was a significant difference ($p<.01$). Therefore, it was suggested that male students had been spending significantly more time for recreation on computers than female students during this year.

Gender & Self-reported Computer Competence

A common stereotype is that male students are more technology-oriented than female students, hence, they usually have better computer skills than female students. With this cohort, the independent-samples t tests revealed no significant difference between male and female students' self-assessed computing competence on either occasion. Although the questionnaires only measured a student's skilfulness in some common applications, the non-difference at least indicated that male and female students had acquired basic level of computing competence equally according to their own evaluation.

On the whole, the gender factor was not found to be prominently discriminative regarding computing experience. This may have to do with the fact that the university is very science-oriented. As Zhejiang University is very typical of such comprehensive universities in the country, these findings are very likely to be true with many other institutions too. Therefore, technically, CALL would not pose much challenge for either female or male students in most comprehensive universities.

4.7.2. Discipline Difference

The participants came from 25 colleges of the University, and they were classified into two categories: science & engineering; and humanities & arts. The common assumption is that science & engineering students are usually more interested in technologies or have to use technologies more often in their studies than humanities & arts students. Therefore, was there any difference in computer experiences between these two groups of students in this investigation?

Discipline & Computer Ownership

The number of students for the two discipline categories was in distinct disparity (453 science students and 68 humanities students, see Table 21).

Table 21: Ownership & Purchase Intention by Function of Disciplines

	Computer Ownership (2004)			Purchase (2004)		
Disciplines	No	Yes	Total	Not buying	Buying soon	Total
Science &Engineering	178	275	453	92	60	152
Humanities &Arts	24	44	68	16	6	22
Total	202	319	521	108	66	174

It was reasonably expected that science & engineering students would be more likely to own computers, probably both for their personal interests and their academic necessity. However, the Chi-Square tests conducted for Table 21 showed no significant difference between the groups either in ownership or the non-owners' intention to buy computers.

Discipline & Self-reported Computer Competence

Independent-samples t tests were used to compare their self-reported competence scores both in 2003 and 2004. The tests indicated that in 2003 at the beginning of their study, science & engineering students (Mean=16.36) were significantly more competent with the common computer applications than humanities & arts students (Mean=13.95,

t(505)=3.59, p<.05, eta squared=.025). However, by the end of the first academic year, the two groups did not show any statistically significant difference any more (science & engineering students: Mean=21.0; humanities & arts students: Mean=20.24, t(508)=1.57, p>.05). Apparently, humanities & arts students had caught up with their peers and had become equally competent in the basic computer skills after one year at university.

4.7.3. Learning Styles

The participants' learning styles were measured in Q01 (2003), and the scale yielded 5 style dimensions. Using the factor scores of the 5 components extracted from the data, the following analysis tried to examine the correlative relationships between the learning style traits and the learners' perceptions of E-learning.

Learning Styles & E-learning Perceptions

Pearson correlations were obtained between learning styles and students' computer attitudes, frequency of computer use in their study, their willingness for using E-learning materials provided by the university, and their liking for the online English learning environment—NCE Online. Although the correlations were all of small power (this could be due to the large sample size, or the ceiling effect of the data as most ratings were skewed to the very positive end), they still indicated certain learning style traits would influence learner's perceptions about and behaviour towards E-learning more than the others.

It was clear that: a) the more extroverted and ambiguity tolerant students had better attitudes towards computer technologies; b) the more methodical and tolerant of ambiguity they were, the more they used computers for their studies; c) the open-minded and extroverted students would tend to use the E-learning materials more voluntarily; d) NCE Online appealed to those who were more open-minded, extroverted and methodical.

Learning Styles & E-learning Features

As discussed earlier in Section 4.6, the participants were asked to rate the usefulness of 7 commonly recognized features of computer-assisted learning in 2004. It was evident that two dimensions of learning styles are particularly important for the strength of these features to be appreciated. If a student was more methodical or extroverted, s/he would be more likely to regard 6 out of the 7 features as helpful. In addition, flexibility of study time and place and collaborative opportunities were also more appreciated by

students with a higher ambiguity tolerance. Communications with both peers and tutors were considered more useful by extroverted students, but methodical students also valued communication with tutors. It seemed quite logical to find that the more close-minded students put more emphasis on instant feedback. As previously mentioned that Chinese learners tend to be closure-oriented and concerned about correctness more than other aspects of learning (see literature review and Part I of this chapter), this correlation explained why the rating of helpfulness of instant feedback became the highest in 2004 (see Section 4.6).

Part III: Questionnaire 02 (2004)

Altogether 682 copies of Questionnaire 02 (2004) (out of a total of 695 copies) were completed and returned by Y03 students at the end of their first academic year. A large part of the questionnaire has been discussed in comparison with Q01 (2003) in Part II of this chapter. In this part, only data from questions unique to Q02 (2004) will be analysed.

4.8. Computing Experience

Computer in Dormitory & Computer Labs

Among the students who owned computers in their dorms, 73.3% of them owned desktops and 24.5% owned laptops, but only 1 student owned both a desktop and a laptop. This suggested that not only were the majority of students in possession of computers (61.1% of the whole cohort, as reported in Part II), but also more of them were proceeding to the more mobile digital technologies in 2004. For those who did not have easy access to computers in their dormitories (9%), they would have to go to computer labs to do any computer-based work. The students' interviews in 2003 had revealed that many students found it difficult to go to work in computer labs. Therefore, Q02 (2004) asked the participants to rate how difficult it was to use the labs.

Table 22: Access to Computer Labs

Very difficult	Often difficult	Occasionally difficult	Convenient
4.8%	8.1%	46.8%	40.3%

The table showed that almost half of the students (46.8%) found access to computer labs occasionally difficult. Although 40.3% thought it was convenient, still more than half of the students considered access to the labs more or less inconvenient.

Computer Confidence

Computer Confidence measured how well the students could cope with the ICT technologies they encountered or would encounter in their lives. On the one hand, there were 5 positive statements to describe a student's confidence in using technologies. On the other hand, there were 5 negative statements to describe a student's anxiety of computer use. After the scores of the negative statements had been reversed (hence the higher scores would still represent higher confidence), the scores for all the 10 statements were summed up and then divided by

10 to produce a total computer confidence score. Hence, the lowest confidence score possible would be 1.0 while the highest possible would be 5.0.

The histogram of the confidence scores was a uni-modal, and fairly normal distribution, except that it was slightly skewed to the right. The expected mean would be 3.0, however, the actual mean was 3.91 which was noticeably above the expected value. The peak of the distribution gathered around 4.0 which was very close to the mean score, indicating there was no significant outlier effect. On the whole, students rated their own confidence remarkably high. The majority of them did not seem to have a phobia for ICT technologies. Even if they encountered a new or unfamiliar technology they indicated to be confident enough in learning to use it quickly. This overwhelming confidence probably was due to the fact that most students enrolled in this science-oriented university were good at science and engineering subjects, hence much less likely to be afraid of technology.

Gender & Study Use of Computers

The prior analysis found that both male and female students had increased their use of computers for recreational purposes over one year, with male students spending considerably more time than female students in 2004. The researcher was then interested to see if there was any significant difference in their computer use for study purposes. In Q02 (2004), both questions used the same 6-point Likert scale ranging from '0 hours/week' to '10 or above hours/week'. As the histogram distribution of the variable was not normal, a non-parametric test—Mann-Whitney U Test—was used to compare the difference between the two genders. Statistically significant difference was found, which suggested female students (Mean=3.49) spent relatively more time on computers for study than male students (Mean=3.2, $p<0.01$).

Computer Attitudes

Students' overall computer attitudes were calculated by averaging the sum of scores from 'Computer Confidence' (including 'Computer Anxiety') and 'Computer Usefulness'.

Table 23: Computer Attitude

Gender	Mean	Median	Minimum	Maximum
Female	3.98	4.00	2.3	5.0
Male	4.11	4.13	1.8	5.0
Total	4.05	4.07	1.8	5.0

The table showed that the students had very positive computer attitudes on average (Mean=4.05). Although the mean and median scores of female students' attitudes were

lower than those of male students', the difference was not significant. Interestingly, the minimum attitude scores of females started at a higher level than that of males.

4.9. English Learning Experience

The participants were asked to choose how long they had been learning English from the following options: 1-3 years, 4-6 years, 7 years, 8-9 years, 10 years or more than 10 years. However, in Questionnaire 03 (Online), students were able to fill in the exact number of the years on the online form, therefore the data were more accurate than Q02 (2004). Hence the data of Y03 students from the online questionnaire showed that these learners' English learning history ranged from 1 year only to 15 years in total by 2004. The majority of them had had about 7 years' experience in learning English at the time they were surveyed, which meant they had had about 6 years' study before they came to university.

The students were then asked to mark whether they had increased or decreased their use of, besides textbooks, the following 6 kinds of English learning media listed in Table 24. They could also leave any of them unmarked if they did not think they had changed the frequency of using them. There are four patterns shown in Table 24.

Table 24: Change in Learning Media

Media / Percent	Printed Materials	Recorded Materials	Broadcast Programs	CD-ROMs	The Internet	Private Tutoring /Extra Training
Decrease	51.0	44.3	31.5	17.3	9.4	35.3
Increase	32.0	37.4	32.7	39.4	56.3	2.4

Broadcast programs

This refers to live programs on TV or radios. The percentages of the students who decreased their use and who increased their use are almost identical. Therefore, the use of broadcast programs on TV or radio did not change much within the year.

Printed & Recorded Materials

Recorded materials here refer to traditional cassette recordings only. Recordings through computer digitalization, such as mp3's, were not included. There was a moderate drop of use of both these two media by the end of the year.

Private Tutoring/Extracurricular Training

It is quite common for some students to hire a private tutor to help with certain subjects, or to attend some special training classes (organised by the university or some independent training schools). For example, many students attend training classes for IELTS or TOEFL tests. The table revealed that students who decreased using this type of medium (35.3%) considerably outnumbered the students who increased its use (2.4%).

CD-ROMs & The Internet

In contrast with the previous three trends, there were markedly more students who increased their use of these two media than those who reduced using. With particular reference to the Internet, students (56.3%) had overwhelmingly increased its use in the past year. As will be shown later in Section 4.11, the students did not use NCE Online very enthusiastically, which indicated that their much increased use of software and the Internet for English learning must have been directed at some other sources. This will be explored further when the student interviews conducted in 2004 are discussed.

4.10. E-learning & CALL in General

Computer Usefulness & CALL Usefulness

There was an intriguing contrast between the students' perceptions on the usefulness of computers in general and computer-assisted language learning. It was found that the mean and median scores for Computer Usefulness (Mean=4.31, Median=4.4) and CALL Usefulness (Mean=3.59, Median=3.64) were markedly different. Although both medians indicated the majority of students rated higher than average usefulness for both variables, ICT seemed to be considered relatively less useful for English study.

As the distribution of Computer Usefulness was skewed to the highest value, a non-parametric test—Wilcoxon Signed Ranks Test—was performed to test the difference between Computer Usefulness and CALL Usefulness. The test showed that there was a significant difference between them ($p<.01$), which suggested that the students regarded computers as being very useful in life, but when it comes to computers for their English study, they did not think of them as useful to the same degree.

E-learning Voluntariness

One factor that may have influenced students' attitudes towards using NCE Online could be their willingness to use E-learning in general. Many courses required or encouraged students to utilise E-learning materials, from simple forms, such as teacher's classroom presentation downloads on an FTP site, to much more complicated systematic learning environments such as NCE Online. However, did the students access E-learning materials mainly because of university or tutor requirement (as some courses counted online study time into final assessments)?

Table 25: E-learning Voluntariness

completely required	mostly required	equal	mostly voluntary	completely voluntary
2.9%	25.9%	27.0%	39.0%	5.2%

Only a marginal number of students (2.9%) utilised E-learning completely because it was required, even though completely voluntary students were just as scarce (5.2%). It is gratifying to see that 'mostly voluntary' (39%) was the largest proportion of the cohort. The students choosing equal amount of required and voluntary E-learning took up 27%. Therefore, it seemed the majority were fairly willingly utilising E-learning for their study rather than being 'forced' to.

Favourite English Learning Mode

All the students had College English classes in two kinds of classrooms: a) the teacher has a computer and each student also has a computer in front of him/her; b) only the teacher has a computer and the students sit at pentagon tables in groups. The course was primarily still conducted in face-to-face classroom settings, but some teachers would utilise the computer facilities more often and in a much wider range of ways whilst some teachers would only use the computers as digital projectors for their lesson plan presentations. Irrespective of their experiences however, in what ways would the students like to learn College English? Six options were offered as answers to the question about their favourite English learning mode: 1) completely face-to-face (F2F) classroom learning; 2) mainly F2F classroom learning + some online learning; 3) equal amount of classroom and online learning; 4) mainly online learning + some classroom learning; 5) online learning through courseware + online tutoring; 6) completely online

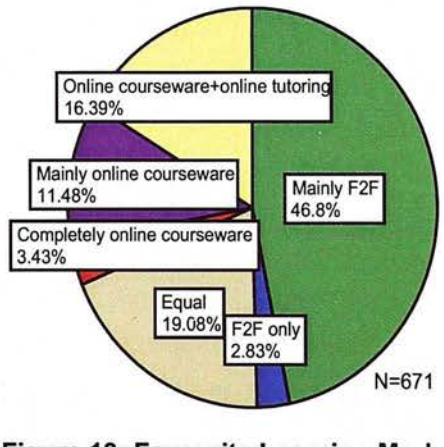


Figure 13: Favourite Learning Mode

learning through courseware. In Figure 13, 'Mainly F2F' took up the largest percentage (46.8%), which indicated that almost half of the students would still prefer the traditional classroom teaching and learning mode. However, they would not want to fall back to F2F classroom learning only (2.8%) or opt for completely online learning (3.4%) without any tutor guidance. The number of the students who had a preference for more online learning than F2F learning was not negligible (16.4%+11.5%+3.4%=31.3%). This suggested that the students were still largely relying on human contact in learning but CALL was also seen as indispensable and was gaining more prominence.

Usefulness of CALL

The students were asked to rate on a 5-point Likert scale the usefulness of the commonly cited benefits of ICT for English learning on the basis of their one-year study experience. As shown in Table 26, some features were the same as those measured in usefulness of E-learning in general. The list of benefits was ordered from the highest to the lowest according to the mean values.

Table 26: CALL Usefulness

CALL Features	Mean	Median
Instant Feedback	4.04	4.00
Resources	4.04	4.00
Flexibility (Time/Place)	3.82	4.00
Autonomy (Study Management)	3.81	4.00
Tutor Communication	3.65	4.00
Peer Communication	3.54	4.00
Repeatability	3.48	3.00
Collaboration	3.39	3.00
Distance Education	3.33	3.00
English Communication Opportunities	3.18	3.00
Effectiveness (vs Printed)	3.16	3.00

Although the means of all the features scored above the average 3.0, there were apparent preferences for some features over the others. The two lowest ratings at the bottom of Table 26 were both slightly surprising and yet understandable: 1) they did not think CALL was necessarily more useful than paper-based materials in helping them learn English (M=3.16); 2) they did not think computers and the Internet were that useful for providing them with more opportunities to communicate with other people in English (M=3.18). The reasons for these two observations will be demonstrated in the analysis of students' comments later in this part.

The second important finding was that these students regarded ICT as most useful for providing abundant resources and instant feedback for online exercises. The flexibility of time and place to study and the self-control of study progress were viewed as secondary in CALL usefulness. This is an interesting finding in that, in most E-learning research conducted with European students, flexibility is usually the most sought-after characteristic of E-learning (e.g., Ward and Newlands 1998). Nevertheless, this emphasis on obtaining instant feedback again echoed with Chinese students' strong tendency of being closure-oriented.

The third finding, corresponding with the learning style results, was that 'Collaboration' was not thought of as a very useful feature. This was also reflected in the slightly lower rating for 'Peer Communication' compared to 'Tutor Communication'. They perceived that computers were more useful in enabling communications with tutors rather than communication or collaboration with their peers. The relatively low rating for 'Distance Education' also revealed that the students were not very open-minded about obtaining more and probably better educational opportunities from other institutions, which could also indicate that they still did not have a lifelong learning mindset as the society has not fostered such a culture for long.

CALL Attitude

The students' CALL attitudes were derived from the mean scores of the sum of their 'Computer Attitude', 'E-learning Liking' and 'CALL Usefulness'. Same as other scores, the CALL attitude scores ranged from 1.0 (very negative) to 5.0 (very positive).

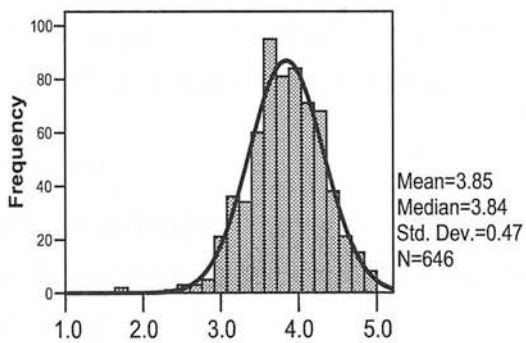


Figure 14: CALL Attitude (2004)

As we can see from the histogram figure, the distribution of the CALL attitudes was clearly skewed to the higher end, and the mean and median values were close to 4.0. This indicated students' highly positive attitudes towards using ICT in their English study. However, as

will be seen in the following section, a very positive attitude towards CALL in general did not entail an enthusiastic attitude towards the CALL system NCE Online.

4.11. NCE Online

Liking for E-learning & NCE Online

There was another obvious contrast between the students' enjoyment for E-learning in general and NCE Online in specific (see Table 27). The mean value (M=3.77) revealed a very favourable affect for E-learning, while the mean of NCE Online Liking (M=3.14) was moderate. Moreover, the skewness of E-learning Liking was distinctly negative (indicating more people were at the higher ratings' end), contrary to the positive skewness of NCE Online Liking.

Table 27: Liking for E-learning & NCE Online

	Mean	Median	Skewness
E-learning Liking	3.77	3.80	-.38
NCE Online Liking	3.14	3.20	.01

Since both E-learning Liking and NCE Online Liking's distributions were normal, a parametric test—paired-samples t test—was conducted, and significant difference was found at $p<.01$ level. The eta squared statistic was 0.55, showing a very large effect size. This indicated that the students were very favourable about using computers in their studies, but their affect for the existing online English learning environment was not as strong. In fact, half of them only used it a few times in total in the past year. There were a non-trivial number of people (15.6%) who had never used it. Hardly any of them (0.3%) had ever used it daily, and people using it several times/week (14.5%) and several times/month (19.6%) were apparently in minority. In general, the students' utilisation of NCE Online did not appear to be very enthusiastic. The reasons will be explored in Q03 and the interviews.

Expectations on NCE Online

The students were then asked to indicate how much they would need NCE Online to provide the following resources or functionalities (as listed in Table 28). The scores ranged from 1.0 (the least needed) to 5.0 (the most needed).

Table 28: Expectations

	Mean
Oral Practice	4.15
Questions & Answers Area	4.06
Pronunciation Training	4.05
Reference Tools	4.04

Exercises	3.92
More 'English For Fun'	3.89
Writing Training	3.89
Background/Cultural Information	3.87
Communication with Tutors	3.72
Peer Collaboration	3.67

Understandably, the students gave more than medium ratings for all the items, however, Table 28 showed some items enjoyed comparative priorities. What was most needed in NCE Online was apparently opportunities for oral practice, posting inquiries, obtaining answers to language problems, pronunciation training and good reference tools. The second important resource was exercises and 'English For Fun' materials (mainly audio/video). These expectations were reflected almost identically in the comments from this questionnaire and Q03 (more details in Section 4.14). In contrast, online communication with tutors and collaboration with peers were again the least needed. However, 'Communication with Tutors' was still rated higher than 'Peer Collaboration'.

4.12. Significant Correlations

Pearson correlation (2-tailed) procedures were run between several variables. Many informative correlations emerged, albeit fairly weak in power in many cases. All the correlation coefficients quoted here are significant at $p<.01$ level unless otherwise stated.

Computer Ownership

The ease of computer access was found to have strong positive correlations with many factors: self-reported 'Computer Competence' (r=.24), 'Computer Confidence' (r=.25), 'Study Use Frequency' (r=.17), 'Recreational Use Frequency' (r=.21), 'NCE Online Use Frequency' (r=.20), 'E-learning Voluntariness' (r=.17), 'NCE Online Liking' (r=.18). It was very natural that the easier computer access was (e.g., owning a computer completely), the more the students might have been using computers, and thus better computer skills and confidence. However, it appeared that the easier the access was, the more likely they would use it for recreational rather than study purposes. Apparently, ease of computer access contributed to students' willingness and frequency for using ICT in their studies, but the open questions and interviews revealed that other factors, such as the quality of network connection and students' motivation, played a more important role in students' actual use of E-learning and CALL.

Self-reported Computer Competence

'Computer Competence' was significantly correlated with 'Computer Confidence' (r=.49), 'Computer Usefulness' (r=.34), 'CALL Usefulness' (r=.23), 'E-learning Liking' (r=.31), 'NCE Online Use Frequency' (r=.17), and 'NCE Online Liking' (r=.17). Therefore, the better a student's computing skills were, the more s/he liked using computers for study and the more s/he regarded CALL as useful and liked NCE Online. Both 'Study Use' and 'Recreational Use' frequencies were positively correlated with 'Computer Competence' (r=.11 and .09). Competence's correlations with confidence, usefulness and use frequencies might have been mutual influence. That is, for example, higher computing competence might have resulted in higher confidence while good confidence might have encouraged them to use and improve their skills as well.

E-learning & CALL Attitudes

As expected, 'E-learning Voluntariness' had a positive correlation with self-reported 'Computer Competence' (r=.13) and 'Computer Confidence' (r=.14). It had also positively contributed to 'CALL Attitude' (r=.19), 'NCE Online Use Frequency' (r=.15) and 'NCE Online Liking' (r=.12). Not surprisingly, 'Study Use Frequency' also had significant positive correlations with 'CALL Attitude' (r=.20), 'NCE Online Use Frequency' (r=.24) and 'NCE Online Liking' (r=.16). Therefore, the more often a student used computers for study, the more favourably s/he viewed CALL, and thus would like NCE Online and use it more frequently.

'Favourite English Learning Mode' was expectedly correlated with 'E-learning Liking' (r=.30), 'NCE Online Liking' (r=.34) and 'CALL Attitude' (r=.19). It was as expected that the more a student liked E-learning and the better his/her CALL attitude was, the more proportion of E-learning s/he would like for his/her English study, and the more s/he would like to use NCE Online.

English Proficiency Level

How the students' English proficiency affected their E-learning perceptions was examined through Pearson correlations. Significant positive correlations were found between the students' English placement test scores, 'Study Use Frequency' (r=.16), and 'NCE Online Use Frequency' (r=.13, $p<.05$). Therefore, the higher a student's English proficiency level was, the more likely s/he was to use computers in study and use NCE Online more frequently (See Table 29).

Table 29: Entry Proficiency Test & E-learning

Pearson Correlation (2-tailed)	Proficiency Scores
Favourite Learning Mode	-.02
E-learning Voluntariness	.03
Study Use Frequency	.16(**)
NCE Online Use Frequency	.13(*)

However, two non-significant correlations here were worth paying attention to. Firstly, there was no strong correlation between the students' proficiency level and their voluntariness for computer-assisted learning. As higher English levels normally predict higher academic achievement on the whole, it seemed that the higher achievers in this cohort were not necessarily more *willing* to use E-learning. Secondly, there were non-significant, but negative correlations between their proficiency and favourite English learning mode. This indicated that there was a possible tendency that the better a student's English was, the more s/he favoured the traditional classroom teaching and learning. If we observe the distribution of preferred learning mode for each English proficiency band in this cohort, we can see a very consistent pattern among the different levels (see Figure 15): mainly face-to-face learning aided by some online study was always the most favourite learning mode. Hence, the frequency with which the students utilised the University's E-learning materials did not necessarily indicate their *preference* or *willingness* for having E-learning.

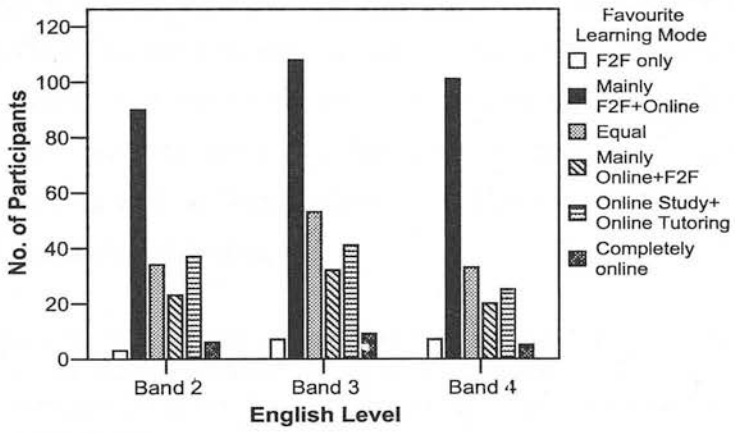


Figure 15: English Level & Favourite Learning Mode

Interestingly, among all three levels the students who preferred to have online learning with online tutoring always outnumbered those who wanted mainly online learning with some classroom teaching. This suggested that at every proficiency level, if a student chose to have online learning as her/his main study mode, s/he was more likely to prefer online tutoring than classroom interaction.

4.13. Gender Differences

Independent-samples t tests were conducted to determine gender differences in students' self-assessed 'Computer Competence', 'Computer Usefulness', 'Computer Confidence', 'CALL Usefulness', 'E-learning Liking' and 'NCE Online Liking'. The only gender difference was found in Computer Confidence (female Mean=3.79, male Mean=4.0, $p<0.01$). This indicated that, even though they had comparable computer skilfulness, the female students were still psychologically less confident about technology than the male students.

4.14. Open-ended Questions on English study and NCE Online

Students' comments about their English study and perceptions of NCE Online were collected from the open questions in Q02 (2004) and Questionnaire 03 (Online). All the related text data were merged and subjected to qualitative analysis using the software NVivo. There are 105 valid comments entries in Q02 and 637 valid entries in Q03.

4.14.1. Attitudes towards E-learning & NCE Online

Most of the comments of general attitudes toward E-learning and NCE Online were from Q02. There were overwhelmingly more positive comments than negative ones (of course, this was largely due to the fact that most students directly pointed out the problems or what they wanted to have in NCE Online, without giving a general view on the system). There were altogether 47 favourable comments, and some of them were indeed quite strong. Simple comments were such as 'Very satisfied', or 'The system is quite comprehensive', while more detailed comments included:

- *'In English class, NCE Online should play a major role. The teacher should only act as someone who explicates the difficult language points, organises group activities, manages progress and assesses assignments. This would be the most ideal English course.'*
- *'Try your best to help students get rid of so many years' habit of studying with paper materials.'*
- *'Our normal class study seems to have nothing to do with NCE Online. This should be improved.'*
- *'Online teaching & learning should get rid of the influence of printed textbooks completely. It shouldn't exist just as a supplementary method, but should become the mainstream study method. Only in this way will online learning gain good development'.*

Two comments about computer-assisted English learning were of particular importance:

- *'This is a kind of differentiated teaching[9]. I feel I am alienated, but the networked classrooms here are very helpful.'*
- *'I think my English, especially speaking and reading comprehension, is fairly poor. Learning via NCE Online can boost my confidence a little bit.'*

These two comments clearly demonstrated that some students needed a more individualized and private learning environment where they could build up confidence without feeling alienated. In addition, there was 1 unfavourable comment indicating learning via computers could do harm to eyes, and there were 5 comments which claimed the Internet was not that useful and 6 comments specifically pointing out books and classroom learning were preferred.

4.14.2. Reasons for Underuse of NCE Online

Corresponding to the earlier analysis, the students appeared to hold fairly amicable attitudes towards CALL, however, the use frequency of NCE Online was very disappointing. What had caused this discrepancy? Three types of reasons were identified from the comments.

Technical

The online learning system itself was considered very easy to use by the majority. One student said 'It is so simple. I believe no one would find it difficult to use'. Among the 23 comments concerning the ease of working with the system, only three students complained that it was difficult to operate the system. Nevertheless, there were obviously two very critical problems with the system: system availability and the interface.

1) Availability

The unavailability was by far the most hindering factor for the students' use of NCE Online. Fifty-six comments pointed to the fact that NCE Online was constantly not available. Two main reasons were: a) the university network was not very stable; b) the NCE Online server was not very robust either. Students had noticed that whenever there were too many people trying to use it, the server would either slow down enormously or collapse completely. Also, the students often had even more difficulties accessing it from their home computers (outside the university intranet). One student gave a very alarming comment: 'If NCE Online is not available eleven out of ten times, even if it has the best resources in it, how is it supposed to be used?' The problems with the network and the server also created difficulties in accessing the resources within the system even

[9] This was referring to the course setting where students were streamed into different proficiency levels and taught with different materials and at different paces.

when the students were able to log in. One student's comment was probably very representative of their reluctance for using NCE Online: 'Sometimes, the network speed is so slow, it wastes so much time when I work on those online exercises. This has made me not want to use the system very often.' The most affected were the resources or functions with video and audio, which were often unplayable or were broken up constantly. The performance of different components of the system was affected by the overall network inefficiency, which was probably as disheartening for students as for the system developers.

2) Interface

Thirty-eight comments were about the unsatisfactory usability of the system interface. The feature students complained about most was that the interface took up the whole screen (including the Windows task bar at the bottom of the screen) without a minimizing button. Hence, many students did not know how to access other task windows without exiting NCE Online completely. They pointed out that such an interface was neither convenient nor friendly, and suggested the system should use a window-type interface like other programs so that they could easily switch between different task windows.

The clarity of the interface was also problematic. Many students found the text areas were 'too crammed, often making me feel tired', and the navigation buttons were too small to be visible or used easily. One comment highlighted this: 'The text button for selecting which textbook to study is far too small. I couldn't find it the first few times, and it's not very easy to use either after I found it.' Another student suggested: 'It is a lot of trouble to select the textbooks and the units. It'd be much better if the navigation could be made into a tree map.'

The main navigation among different sections of the site was carried out by a fly-in object. That is, for example, as soon as you click on the link for choosing a textbook, a bullet-shaped graphic object will fly in offering you the choices of the books and their units. However, if you are not quick enough to move your mouse over it, it will fly away. Although it was supposed to be a more interesting and eye-catching way to navigate, as the students here pointed out, it actually made navigation 'fiddly'. Also, since the layout of the interface was a fixed-size graph and only occupied about 80% of the browser window, there was a conspicuous amount of blank space around it which was also a cause for the small font of the texts on navigation buttons.

Some students also found the colour scheme and layout of the interface unnecessarily complicated, 'very distracting', and some animation was very childish. Two students plainly pointed out the interface should be simpler, and the 'fancy stuff' would only take up more machine capacity. Some suggestions on improving the accessibility from the students again proved that learning system design technicians should always listen to what users prefer rather than follow their own design interests. Here are some sample suggestions:

- *'That flash animation preceding the login homepage should be deleted, so as not to affect the already-not-too-fast speed.'*
- *'I hope it can accommodate 800*600 screen size setting*[10]*.'*

The technicians had spent a considerable amount of time developing a very nice Flash movie for the entry of the system, and exquisite graphics for the system interface. However, such design imposed certain requirements for users' computers, such as the installation of the software Flash, and the adjustment of screen size for the interface graphics. The comments above clearly showed that users would much prefer a simpler, but more accessible site, instead of having to compromise to some not very relevant or familiar technologies. In fact, such technical requirements had proved to be more serious problems for the English teachers who were not as technology-savvy as their students.

Organisational

Another much less mentioned but equally important hindrance was the University's policies on ICT implementation on campus. Seven comments were concerned with the costs of networks and the quality of the public facilities. One of them suggested the University have a fixed monthly charge for using the network to facilitate their online English learning, another suggested reducing the lab using fees. As mentioned previously, the University charged tiered rates for different networks. Accessing the national network and the Internet was charged according to the time spent. This was obviously very restrictive in that it is well-known that it often takes a long time to find and absorb the vast information available on the Internet.

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[10] The system requires users to set screen size to 1024*768 to be able to access the site.

The existing ICT facilities in the English classrooms were not very satisfactory, either. One comment was, 'The facilities in the classroom are too bad! Nine computers out of ten have problems', and another one asked, 'Why don't we use English-version Windows on the machines in our English classroom?' Furthermore, the fully computerized English classrooms were not open to the students outside their College English class times. The facilities were therefore largely wasted most of the time.

These organisational difficulties are very much out of the control of the NCE Online developers or even the Foreign Language College. To a certain degree, even the university did not have full control since the network services were provided by a private IT company. The company had initially prevented NCE Online from being accessed from outside the university by trying to overcharge, which forced NCE Online to purchase its own servers and wired network connection directly from a telecom company.

English Learning in General

Apart from the external factors, such as technical problems, the students' attitudes towards their English study in general might have played a role in their utilisation of NCE Online. Although they were aware of the importance of learning English well, about a dozen students confessed they did not have enough motivation or perseverance to study English as hard as they should have. Eight students found their classroom learning very boring and unmotivating. For example:

- *'It seems most people think College English class is for sleeping because you don't learn much in class.'*
- *'Hope the class become more efficient, richer in content, stricter in requirement. Don't be so slack any more.'*
- *'Students get more and more bored as they learn. Teachers get less and less enthusiastic as they teach, and even perfunctorily ask us to study on NCE Online on our own in class.'*

It was probably safe to infer that, if they largely held a disaffected attitude towards English learning in general, these negative attitudes were likely to have been transferred into the use of NCE Online.

However, many more students (26 in total) blamed it on the limited time they had. They claimed that they had far too many courses for their majors which were often very difficult ones, so they could not find much time for English study or to use NCE Online. Most of them wished they could spend more time on English learning. However, one student's

comment is probably the most illuminating of this dilemma: 'Too many other courses, I'm too busy. Since there's not much pressure from the English course, I'm a bit loose with English study.' As a matter of fact, it was more about priority rather than time constraints. Compared with their major courses, College English was not as important, and did not require as much effort for assignments and attainment. Therefore, English learning and use of NCE Online were both very easily superseded by other activities whenever there had to be a priority.

4.14.3. English Learners' Needs

The students listed a number of things they would like to have in their traditional English learning environment and in NCE Online. They were classified into four types of comments: communication, resources, NCE Online functionality, learning activities (for skills other than speaking). The total comments of each category can be seen in the following table. It is evident that the most desired were opportunities to communicate and practice oral English with other people. The demand for more resources was also overwhelming.

Table 30: Learning Needs

Communication	Resources	Learning Activities	NCE Functionality[11]
220	193	90	44

Communication

There are many kinds of communication in terms of locality, partner and medium. Therefore, the comments were coded into 5 sub-categories: communication with native speakers, with tutors, online, with voice, and general speaking practice. Of course there were sometimes overlapping comments, e.g. 'I want to communicate with native speakers online.' Such comments were only coded for one category. Here, 'native speaker' was regarded as a more important discriminator, so this was coded under 'communication with native speakers' rather than 'communication online'. Overall, the priority of the keyword discriminators is as follows (from the highest to lowest priority): native speakers → tutors → voice → online → general.

108 comment entries were about students' wish to improve their oral English in general. Many students realised that their lack of confidence in speaking up was one of the factors that had prevented them from having more speaking practice. They reckoned they were 'too

[11] Comments suggesting having voice chat function in NCE Online were also included in 'Communication'

timid to speak' or 'having some sort of psychological barrier from speaking English out loud'. Nevertheless, a much more critical fact was that they acutely felt there was not an 'environment' in which they could communicate with other people in English. They did not have a natural environment where they were immersed in authentic English; neither did the University or their tutors create activities or opportunities (e.g., organised speaking practice venues such as 'English Corner') to encourage them to speak more. Here are some typical quotes:

- *'There's far too little speaking practice. Some compulsory practice activities are needed.'*
- *'There should be more communicative exchanges in English class. I think the teacher should take the lead, and then let the students speak to each other freely.'*
- *'Although we have much more time during the summer vacation, the university do not organize anything for us to have communicative exchanges.'*
- *'Hope the teacher can give us more chances to practice oral English, and exams should have less rote learning items (e.g., blank-filling).'*
- *'Chinese students' English learning environment is not good. They all avoid talking to each other in English.'*
- *'I think English study should increase opportunities for communication and collaboration between students, e.g., collaborating on a presentation together.'*

Apart from general communication and speaking practice, the students were most eager to have chances to communicate with English native speakers (70 entries). This category included making friends with foreign students, having study partners for mutual language learning benefits, having language courses/help from native-speaker tutors, or even living with foreign friends for some time. For instance:

- *'Hope the Internet can give us chances to communicate with foreign students in English.'*
- *'English study should involve more communication with English native speakers, and create a naturalistic language environment.'*
- *'If possible, the university should provide more oral English practice courses taught by foreign teachers.'*
- *'Hope there are more chances to speak to English native speakers. ... The foreign teachers shouldn't only work for the Foreign Language School. Students from other schools should have the right to get help and instructions from them too. ... Can the Foreign Language School library be open to students from other schools at certain times, too?'*

On the whole, the students were very keen on more authentic, and real application of English as a language. They were in great need of an *environment* where they could use the language in less artificial but truly communicative contexts. There are also a few comments which suggested students would like to have more communications with teachers, although the purposes and means of such communications were not very clearly stated.

Understandably, to achieve the above mentioned communications between different parties, 30 students emphasized what ICT may be able to do. Most of them suggested online forums and chatrooms where they could: a) communicate with each other in English; b) exchange a large amount of information and resources; c) help each other with queries about language acquisition. A few students frankly pointed out the forum in NCE Online was very poorly designed, and they did not just want a forum where they could do artificial practice, but have real discussions about all kinds of issues. They also realised that a human tutor's role was important for such online communication. One student said: 'Can we have online tutors to ensure effective communication?' And another student said, 'If only we could have an English forum for each class and the teacher for that class is the moderator. If so, there would be more students going to NCE Online. At least I will go there often.' Some students suggested there could be some online 'get-togethers' or oral English class which could be recorded and then the online tutor could assess students' performances. Ten students specifically hoped for online *voice* communication tools in NCE Online. To improve speaking skills, communicating in text is obviously not sufficient. No wonder one third of the students who were in favour of online communication preferred to have synchronous *real talking* with others online.

Resources

Besides communicative environments, the second most needed was more resources, especially more authentic resources. 31 students emphasized that ideally they would like to have easy access to authentic English sources such as English-speaking radio or TV channels, English novels/magazines and English films. However, they were often either too expensive or too difficult to obtain in China. This explained why NCE Online was expected to provide a great deal of such resources. As one student commented, 'Computers and networks should mainly be uses to offer a lot of resources.' The kind of resource the students wanted most in NCE Online was audio and video materials. The 'English For Fun' module of the system provided a certain amount of music, movie clips and games, however, the students found them significantly less than enough and they were also not updated fast enough. Altogether 68 comments were asking NCE Online to put up more listening materials and multi-media entertaining resources, such as commercial English learning materials (e.g., Family Album USA), TV/radio programs (e.g., BBC, CNN), and English films.

- *'Set up a bank of movies with English subtitles.'*

- *'Hope there are more real-person speaking, Flash demonstration or video and MTV, to make teaching more entertaining, e.g. using segments from Friends.'*

Another important resource students wanted NCE Online to offer was referencing and annotations. 25 comments mentioned the referencing facility of NCE was both slow and inconvenient to use, as well as not having enough vocabulary in the glossary. Four of them suggested the vocabulary referencing should aim to function as well as a popular dictionary software—KingSoft. One comment may be of particular interest to NCE Online developers:

- *'If NCE can set up a personal notepad for new words for each student, similar to KingSoft dictionary (which can add any word on the screen to your new word notepad), I think it will increase the efficiency and effectiveness of my use of the system.'*

Other students complained that there were not enough annotations for texts or answers to exercises and games, and the existing ones were almost identical with what they could obtain from their textbooks.

- *'Those games only provide a correct answer. This does not help with English learning much. I can guess most of them right. I hope there are more annotations and other relevant knowledge.'*
- *'I hope explanations of vocabulary and annotations for the reading texts are not just copies from the textbooks. We might as well read the textbooks if they are identical, which at least strain our eyes less.'*

The last major resource the students wanted to see in NCE Online was online tests and exercises. Apart from reading and listening exercises, the 20 comments mainly suggested NCE Online provide banks of previous exams, CET 4/CET 6 mock tests and international English tests (e.g. TOEFL, IELTS).

There were also more than 30 comments that mentioned some other resources NCE should provide, such as English classic literature, knowledge of English culture, and links to other recommended English learning websites.

To summarize, what the students expected from the online learning environment was well expressed in these two comments:

- *'Online environment is not like a textbook. A textbook can only have a limited number of pages, but an online system can have as much as needed. Otherwise, there is not much point learning online; reading a textbook would be easier.'*
- *'The content of NCE Online should not just be from the classroom teaching. ... It should offer learning contexts that students can relate to easily.'*

NCE Online Functionality

Although comparatively much fewer in number, the 44 comments in this category may be the most constructive to NCE Online designers. Among them, 14 suggested the system to enable students to download resources, 10 expressed the wish to have a voice chatting facility, and interestingly, two students suggested to build a platform on which students can upload good resources for other students to share or personal work (e.g., writings) for teachers to assess. This indicated that students were not only receptive of knowledge and information, they also had a strong desire to participate, communicate and share.

There were also some more general suggestions which may be informative to any CALL designs for Chinese learners:

- Online submission of assignments which the teacher can assess online
- A Model-Teacher featured column
- Streamed learning so that students of different levels can all benefit from it
- More interactivity
- Help improve vocabulary memorizing
- More personalized learning

Learning Activities and Other Skills

The students expressed their need for more effective learning strategies, activities to enhance their language skills (other than speaking), and a genuine English learning environment. 32 students were concerned about vocabulary acquisition. One student even said, 'The key (of English study) is listening and vocabulary memorising.' They felt it was a difficult task, and were worried that their methods were not efficient enough. Apart from speaking, students also wished to enhance other skills such as listening, writing, and translating. Listening was clearly the second most important skill to these students.

Nineteen students claimed that what they wanted to achieve most was to attend and pass some important English proficiency tests, such as the national CET 4/CET 6, and the American test GRE. This was closely correlated with the 17 comments showing a wish to go abroad to improve English. Hence, the students would like the University to organize more training courses for such tests.

However, comments of two particular learning activities were worth special attention. Many students wished they could do morning reading (reading out loud to practice oral English) regularly, but they expected the University or the English teachers to arrange times and

places for such an activity or even make it compulsory. The other type of activity was peer or group learning. Even though only three students mentioned that they would like to study together with partners so that they could monitor and prod each other, there might have been many more students who would have the same thought in that many were relying on the University to prod them to study. Since a fair number of students had shown a desire to communicate with each other in English, and to share ideas and resources, then peer learning should be fostered as a key learning strategy that may motivate and encourage students to learn more and better.

Part IV: Discussion

The two questionnaires surveyed the first-year undergraduate students at Zhejiang University who were enrolled in 2003. About 70% of them were male students while 30% were female, and around 80% of them were majored in science and engineering participants while only 20% were in humanities and arts. They were mainly aged between 17 and 20. They came from almost every province of the country, but 60% were from Zhejiang Province where the university is located.

The questionnaires investigated the students' English learning and computing experiences, learning styles, and attitudes towards computer-assisted learning over their first year of study. Although one academic year was not very long (about 9 months at study and 3 months' holiday), there was still a considerable amount of change in many aspects of students' general study and computing life.

4.15. English Learning Experience

The students had had on average 6.5 years of formal English learning before they came to the university which meant they mostly started English learning from secondary schools. The vast majority of them had mainly used printed and recorded audio materials in their previous learning. A fair number of students had also used TV (49%) and radio programs (36%). A relatively smaller proportion of them (about 20% or even less) had used such media as video, CD-ROMs, the Internet and private tutors or training. Nevertheless, a year later, about half of the students reported decreasing the use of paper-based or recorded materials, and the plummet was even more drastic for private tutoring or training. In contrast, both CD-ROMs and the Internet had gained remarkable popularity.

In their English study, students felt writing and speaking became less difficult although still more difficult than the other three aspects: vocabulary, grammar and listening. Because this question asked students to rank the five aspects rather than rating them with any value from the 5-point scale, the difficulty scores were ipsative, i.e., the rating decrease of one aspect will inevitably result in rating increase in other aspect(s). The data has revealed that grammar was considered the easiest aspect of English study in the end while Vocabulary had

the highest increase in difficulty. The differentiated changes in the 5 skills probably resulted from the fact that the course consisted of a fair amount of speaking activities and some writing practice, therefore fewer students found them too daunting after a year. However, the enormous vocabulary requirement for each unit (more than 100 new words from 3-4 reading passages) could have become a challenging task for the students. Another outstanding finding was that students' liking for English learning had significantly plummeted, which seemed to have affected their motivation for using their CALL system—NCE Online. The reasons behind this decrease of liking for the subject will be presented in this part later as well as in the interview analysis.

4.16. Computing Experience

Before they came to the university, about half of the students had computers at home and 83.5% of these students had network connections. The majority of them could use the home computers anytime they wanted, without the need to ask for their parents' permission. However, after they entered the University, most of them had to live in university dormitories where 4 or more students shared one room (unlike European university flats where students live in separate rooms). When home computers were not accessible, many students had to purchase new computers for their dormitories. Over one academic year, the most dramatic change was the students' possession of computers. 90.6% of them did not have any access to a computer at the beginning, whereas by the end of the year, 61.1% owned computers and 29.8% had convenient access to other people's computers (or a computer at home), which left only 9.0% students still not having easy access to a computer. In fact, the 2004 survey saw 24.5% of the computer owners had laptops, which indicated a strong trend towards possession of more mobilized technologies. This was also a trend found with European university students in MacLeod, Haywood and Haywood's (2003) survey which showed nearly two thirds of university freshers were ready to purchase laptops for their university studies.

Ironically, more than half of the participants declared at the beginning that they were not going to purchase computers. The actual rapid increase in ownership of computers a year later may have been the result of two impetuses: a) the drastic price drop in the IT market has made computers affordable to a majority of people in china. As IT permeates into more and more aspects of daily life, students may feel the need to utilise and familiarise themselves with computers; b) computers may have become a tacitly required part of their

university study, as so many of students' academic activities are nowadays conducted via computers (as will be shown in the student interviews). In short, at some point of their first year, these students had realized that computers were a necessity for both their daily life and academic life, and thus secured convenient private access to PCs for themselves. Furthermore, there was no significant difference between male and female students in terms of computer ownership and the intention to purchase computers. Neither did the students' major disciplines seem to be an indicator of computer ownership: the humanities and arts students were just as likely to own computers as their science and engineering peers. All this was obviously a conducive factor for the implementation of any form of computer-assisted learning in this university. It was found in the surveys that the easier the students' access to a computer was, the better their computer skills, confidence and willingness to use E-learning, and hence they used computers for study more frequently, and liked and used NCE Online more. Nevertheless, what can not be ignored is that: a) the 9.0% of students without access to a computer were still a large absolute number as there were more than 6,000 freshmen that year; b) among the students who said they would not buy a computer at the beginning, 64.2% maintained the same decision in the end; c) 83.3% of the students who had easy access to other people's computers did not intend to buy a computer. The reasons for not purchasing could be financial difficulties, aversion to computers, or simply because they could use others' computers easily (this will be discussed in the interviews). In a word, the majority of students who did not own a computer during the first year would be more likely not to purchase one rather than otherwise.

As about 60% of the students found access to the computer labs more or less difficult, almost all of them (99.3%) had obtained network access in their dormitories by the end of the year. However, there was still one third who did not have the Internet. They had chosen to have either intranet only or both intranet and the national network, most probably due to cost reasons (as shown in the student interviews).

These new students showed good liking for computer technologies from the beginning and were very confident in learning to use them. Although judging from the computer ownership rate and the general E-learning development in the country at that time, these students had not had much E-learning experience prior to their university study. They expected computers to be very helpful in providing learning resources, communication channels, self-assessment activities, general information and distance learning opportunities. Despite their very positive attitudes towards E-learning, they indicated a distinct preference for the

traditional face-to-face learning. This perspective is exactly the same as their European peers (Dondi *et al.* 2004) They acknowledged that E-learning elements could make their courses more interesting, but they were not necessarily more helpful than paper-based materials. Therefore, it seemed the students had a fairly positive, yet realistic, view of E-learning before their university study started.

The next question was naturally 'what had the students been doing with their computers at university?' The time spent using computers for both study and recreational purposes increased, but not surprisingly, the increase in recreational time was much more prominent. As it is, this increase in recreation time was mainly attributable to those initially low users. In fact, the originally high users had markedly decreased their recreational use. Moreover, no difference was found between male and female students in their time spent on recreational use in 2003, but there was a significant difference in 2004 which showed the male students spent considerably more hours per week on computers for recreational purposes. The increased recreation time seemed to have something to do with the students' use of the network, as the number of students who chose 'surfing' as one of their main network uses rose up noticeably in 2004. However, other uses (e.g., email, downloading) did not change much. This may suggest that surfing the networks for information and resources had become an important part of their study while there was no such strong incentive for other uses. Moreover, both study use and recreational use frequencies were positively correlated with computer competence, but the influence could have been mutual. It was also suggested that the more the students used computers for study, the better their attitudes towards CALL, and the better their liking and use frequency of NCE Online.

Another important finding was concerned with the use of CMC (computer-mediated communication) tools such as forums and chatrooms. Altogether 38.4% of the students did not list 'forum/chatroom' as one of their major network uses in 2004. To be more specific, over half of the students who had not marked this option in 2003 remained not using them in 2004, and 27.6% of the students who had used them in 2003 stopped thinking of 'forum/chatroom' as a major use. This may suggest that around one third of the students either disliked or find no need or time for synchronous/asynchronous online communication. Therefore, how much CMC tools could be effective facilities for study purposes may call for caution in this context. This was very different from the European students for whom online discussion was one of their main E-learning activities (Haywood *et al.* 2004).

After a year's computer use, the students' self-assessed computing skills had been significantly improved, especially in the use of emailing, web browsing, word processing and electronic presentation programs. The first two were obviously a result of their increased network use, while the latter two were very likely due to their application in the learning tasks certain courses required. No significant difference was found between male and female students in computing competence according to their own assessment. Neither did their major disciplines make any difference. The computer skilfulness was positively correlated with their confidence, and perceptions of computer usefulness and CALL usefulness. The more IT literate they were, the more they liked having E-learning and NCE Online and the more frequently they used the latter. A comparison between these students and the second year students revealed that, when at the same point of their university study (both after one year's study), these new students were significantly more confident in using computers than their senior peers. This confirmed a world-wide tendency: students are becoming more and more IT-literate at a younger age. In a few years' time, this university may be facing the first generation of 'digital natives' (Prensky 2001) of the country.

A very intriguing finding emerged with regard to male and female students' computer competence and confidence which were both assessed and reported by the students themselves. In both years, no significant difference was found in male and female students' computing abilities, and abilities were found to be positively correlated with their confidence. However, the 2004 questionnaire revealed that the female students were significantly less confident than the male students. These seemingly contradictory findings suggested female students tended to *feel* unconfident in technologies even though in reality their IT competence was no lower than their male peers. Since the correlation between computer confidence and self-assessed competence ($r=0.45$) only explained 20% of each other's variance, it could be suggested that some other factors, most likely psychological attributes, leveraged the influence that computer confidence and abilities had on each other. In other words, even though the male students were psychologically more certain of their abilities, their computing skills were actually not significantly better than the female students.

However, while all other skills improved, the proficiency for forums/chatrooms somehow stayed the same (although at a moderately satisfactory level). Echoing with the finding mentioned previously, this could mean that CMC tools did not enjoy much major use during the year. In addition, it was found in 2003 that the students showed an obvious preference for using CMC tools with tutors over using them with their peers (the reasons will be

discussed in student interviews). In 2004, again the students' ratings of the helpfulness of CALL in terms of communication with tutors were higher than that with peers. Both phenomena had important implications for CALL. Online communication tools are supposed to be one of the most effective means to improve learners' communicative competence. In Q02 (2004) the participants did rate oral practice as the most needed functionality in NCE Online. Therefore, one the one hand, these students indicated great need for online communication for English learning purposes. On the other hand, they did not increase their use of CMC tools in general and rated them as less helpful for their studies than the other E-learning features. One explanation is that no existing CMC designs had been used extensively in their E-learning or had facilitated their communication effectively. Hence, unless students experience authentic, meaningful communication through CMC tools as a result of conducive pedagogical considerations, they would not be keen on utilising CMC for their English learning.

4.17. E-learning & CALL Attitudes

The students' perceptions on the usefulness of ICT for English learning had changed in the less encouraging direction. Among the seven beneficial features of E-learning ('Instant Feedback', 'Peer Communication', 'Tutor Communication', 'Self-Paced', 'Flexibility', 'Collaboration', 'Distance Education'), all but 'Instant Feedback' were regarded as much less helpful based on their one-year experiences. When ordered according to their usefulness scores from the lowest to the highest, the 7 features showed some intriguing differences between 2003 and 2004. The feature of 'Flexibility' was as important as 'Instant Feedback' at first but was taken over by the latter at last. Curiously, the feature is generally very sought after by European students as it fits around the rest of their lives. Apparently, these students did not find the freedom enabled by E-learning was as important to them. Some of the reasons for this emerged in the interviews and open questions data.

The possible benefits of 'Collaboration' and 'Distance education' were of significantly less appeal to them than the other features. Especially, 'Collaboration' was considered the least helpful in 2004. There are two possible reasons for this:

1) The tradition of Chinese education does not promote group or team work. In fact, to think and learn independently is a quality that Chinese education encourages and credits. Therefore, these students would have had about 10 years' formal education imbuing them with this value. It is not surprising that collaboration is not one of their top concerns.

2) It may also have to do with the learners' personality styles. As we see in the learning style analysis, Chinese learners tend to be introverted. They may experience greater psychological discomfort working on assignments with classmates or never-met peers online.

Furthermore, there were two critical contrasts between the students' perceptions about the usefulness of computers, E-learning and CALL. Although they rated computers as highly useful in their daily life, they were relatively much less positive about the benefits of computers in their English study. Similarly, the students indicated considerable liking for the existence of E-learning in general, however, their liking for NCE Online was significantly less strong.

On the whole, the students still manifested fairly positive attitudes towards CALL in 2004. Many students realized their habitual reliance on paper-based learning was playing an abrasive role in taking full advantage of CALL, and they proposed CALL should become the mainstream method whereas teachers should only focus on explication of linguistic knowledge, organising activities, managing progress and assessing performance. Especially, some students commented how learning through an online system had made them feel less alienated and more confident. However, the overall decrease in the helpfulness ratings of E-learning in general and CALL in specific may reflect some problems with the quality of the E-learning the university provided. For example, opportunities for online communication with peers and tutors were both rated almost the most helpful feature of E-learning at the beginning but fell to near the lowest in the end. In contrast, information exchanges via CMC was reported as the most useful feature of E-learning by European university students (Dondi *et al.* 2004). This suggested what E-learning could have promoted might not have been happening to the Chinese students. Interpersonal communication was not enhanced by their learning systems such as NCE Online which was not able to exploit the full strength of E-learning. When students lack experience of sophisticated E-learning, they tend to be looking for more of what they are familiar with (Dondi *et al.* 2004). Therefore, it is possible that the Chinese students had wanted their E-learning systems to work in more or less the same ways how their traditional learning worked. Such a mindset may be difficult to change until learners obtain a stronger counter-experience.

4.18. Individual Differences in E-learning

Learning Styles

The 2003 questionnaire revealed 5 dimensions in students' learning characteristics: Methodical—Emergent, Open—Close-minded, Extroverted—Introverted, High—Low Ambiguity Tolerant, and Proactive—Passive. The statements of the learning style measure well reflected the personality descriptions summarized by John (1990) who collected some consensually selected marker items from 10 psychologists. The following table containing the representative traits for the 5 factors defined in this research was adapted from John's list.

	Low	High
Factor 1 Methodical—Emergent	Careless Disorderly Irresponsible	Organised Planful Conscientious Cautious
Factor 2 Open-minded—Close-minded	Narrow interests Shallow Commonplace	Wide interests Imaginative Original Insightful Curious Inventive
Factor 3 Extroverted—Introverted	Quiet Reserved Shy Silent withdrawn	Talkative Energetic Outspoken Sociable Bossy
Factor 4 High—Low Ambiguity Tolerant	Tense Anxious Worrying Despondent	Stable Calm
Factor 5 Proactive—Passive	Good-natured Friendly Cooperative	Fault-finding Quarrelsome Hard-hearted

To more or less degrees, these Chinese students showed inclinations in these 5 dimensions. In general, they seemed to be very methodical and good at tolerating ambiguities in studies. However, they also showed tendency towards being closure-oriented and passive. Significant differences were found between male and female students on these dimensions. The female students seemed to be less methodical or open-minded, and they were more passive but better at tolerating ambiguities.

These students' overall introversion in learning behaviours was fairly strong as they clearly preferred to work on their own. Nevertheless, they were also aware that they might learn better when doing groupwork in class or work on after-class project assignments with other

classmates. Therefore, it seemed that they would be more likely to work alone if left to choose freely, but they would be happy to work with others as well if:

1) they were instructed by the teacher to do so, either in class or after class, or
2) they knew they would be sharing liabilities for a task, e.g., when asked to do collaborative work, they would feel comfortable knowing that they were not solely responsible for the success (or failure) of the project.

Such behaviour, to certain extent, corresponded with their passiveness and the traditional collectiveness. The origin of this characteristic probably had more to do with the way they had been educated rather than their own natural dispositions (it will be further discussed in the student interviews).

Some of the learning styles apparently had positive influence on students' perceptions of E-learning and CALL. For example, more extroverted and ambiguity tolerant students had more positive computer attitudes while more extroverted and open-minded learners were more voluntary in using E-learning resources. Also, methodical students used computers for study more frequently (but not necessarily more willingly) and had a better liking for NCE Online. Moreover, it seemed the more introverted a student was, the more s/he liked the 'Instant Feedback' feature of E-learning. Since these Chinese students were generally introverted in learning settings, little surprise that the rating of 'Instant Feedback' was higher than all the other features. On the whole, it appeared that students' extroversion, methodicalness and ambiguity tolerance were important factors influencing their perceptions on E-learning and CALL.

In all, these learning characteristics suggested that these Chinese students would prefer a very sequential and structured learning environment. They would like to have close-ended practical exercises (such as multiple choice questions) rather than open-ended ones. They would rather sit back and listen than stand out and speak. Considerable teacher instruction and guidance would be needed for most learning activities, especially if any collaborative work was to take effect.

English Proficiency Levels

The students were streamed into 4 proficiency levels after the entry placement test. The individual test scores were used to correlate with variables such as study use frequency, E-learning voluntariness, favourite learning mode and NCE Online use frequency. It was found that the students' English proficiency was positively correlated with their frequency of

using computers for general studies and NCE Online. Although it had no significant correlations with their voluntariness for E-learning and favourite learning mode, it had a negative correlation with 'Favourite Learning Mode', which suggested that it was likely that the higher achievers preferred less CALL elements in English study than the low achievers and were not necessarily more willing to utilize E-learning. Yet, they used E-learning and NCE Online more frequently. This could be explained by the fact that high achievers may be more methodical and strategic in learning. On the other hand, it was found that at each proficiency level in 2004, there were more students who favoured the learning mode of mainly online self-study with some online tutoring than that of mainly online with some classroom learning. It seemed, therefore, if a student chose to have online learning as his/her major English study mode, then it was very likely that classroom-based learning would not be seen as a must in his/her study any more.

Gender

No gender difference was found in students' perceptions on the usefulness of computers and CALL or their liking for E-learning and NCE Online.

4.19. CALL Use and Expectations

After one year's study, the students showed fair willingness to utilise E-learning materials for their courses. Less than 3% of them used E-learning resources completely out of the University's or tutors' requirement. About 40% were using E-learning voluntarily most time. It seemed the more confident and competent a student was in using computers, the more voluntarily s/he would use them for studies. In turn, the data showed that the more willing the students were with E-learning, the better their attitudes towards CALL, and the more they liked and used NCE Online. Nevertheless, since for these students NCE Online was not a compulsory, integrated part of the College English course, it was found in 2004 that 15.6% of them had never used it, and half of them had only used it several times over the year. Only a small percent of them were using it a few times per week or per month. As they indicated fairly good voluntariness for using E-learning in general, NCE Online seemed to be distinctively underused.

When asked what would be their favourite mode for English learning, i.e., how much of CALL they would like to have in their English course, the majority seemed to prefer a blended mode of learning—with a large proportion of face-to-face classroom learning and a

small proportion of after-class online learning. What was worth noticing was a non-negligible percent of the students (31.3%) indicated in 2004 that they would like to have either mainly online learning or completely online learning with some online tutoring. On the whole, it was suggested that, although the majority of students were still reliant on human contact in learning, they had regarded CALL element as indispensable and were putting it in a more and more prominent position. Not surprisingly, choice of the amount of CALL in their favourite learning modes was positively correlated with the students' attitudes towards CALL, and their liking for E-learning in general and NCE Online.

4.19.1. Reasons for NCE Online Underuse

The students' comments in Questionnaire 02 (2004) and Questionnaire 03 (Online) revealed some major reasons behind their underuse of the NCE Online system. All the reasons could fall into 3 main categories: technical, organisational and English learning attitudes.

First of all, the most serious obstacle reported was that both the university network and the NCE Online server were not reliable. For example, the system server was prone to fail when too many users were trying to access it at the same time. The sluggishness of the university network was another test on the learners' patience whenever they tried to access multimedia or interactive resources in the system. When the transferring of a video or sound file was constantly broken up by the problematic network, then the students lost both patience and interest in the initially useful resources.

On the other hand, some of the system's technical designs were not very user-friendly, either. The most recurrent complaints were:

1) The system restricted the users to have a screen size of 1024*768. Meanwhile, most students' computers were set to 800*600 screen size. To IT novices, the switching between different screen sizes can be rather daunting, however, the system would not run without its required screen size.
2) There was a long flash animation movie before the user could reach the login page. As the flash movie took a substantial time to download over the slow network, many students soon lost interest waiting.
3) The interface was thought to be 'too crammed'. Especially the navigation buttons were not big and obvious enough, and some of the navigation menus were fly-in flash objects which were difficult to 'catch'.

These problems demonstrated a gap between the technicians' design ideals and the users' expectations. The more advanced or 'pretty' features are not necessarily what E-learning users are concerned about. In fact, it is clear that the students were very aware of the

downside of 'too much technology', and would rather have a system easy to use than looking impressive. Apart from technical drawbacks, the students also did not find accessing NCE Online was as convenient as using books in their self-study (see reasons in Section 5.6).

Secondly, at the university level, there were also many restrictive factors. The University's network was provided by a private company. The implementation of NCE Online was almost aborted at first because the company was trying to overcharge for mounting the system on their servers. In the end, the NCE Online team had to purchase servers for themselves and set them up independently. Nevertheless, the most outstanding problem was the University's charges for using networks. Using the intranet was a reasonable fixed monthly charge, however, the national and international networks were charged by the time used at a relatively expensive rate. Moreover, the computer had to undergo a manual configuration every time it needed to be connected beyond the intranet. The students felt that to use the national network or the Internet was both costly and time-consuming. Although NCE Online was accessible both from the intranet and the Internet, the students would be reluctant to utilise any external resources linked from NCE Online. In addition, the ICT facilities in the English classrooms were often faulty, which was very frustrating for both the teachers and the students (see more details in the interview analysis).

Thirdly, many factors were linked to the ways the students were learning English. Many students reported a lack of motivation for English learning in general. Some of them felt the English lessons were boring, and some regarded the classes as 'slack'. They could feel that some teachers were becoming less and less enthusiastic in their teaching as well. As a result, they were not so much interested in using NCE Online for their English study. However, the problem they complained most was the lack of time. They claimed they had too many major courses already which were often very difficult. Since the College English course was relatively easy and did not require as much effort for assignments, it was not treated as a priority even though the students wished they could spend more time on it. Therefore, it was even less likely for the students to set aside a certain amount of time to study in NCE Online.

4.19.2. English Learning Needs

A rich amount of data were provided by the students to suggest what they would most like to have in their everyday English learning and in an online system such as NCE Online. Four categories of desirable resources were identified and discussed hereafter according to the frequencies they appeared in the data. The first two categories were considerably more

dominant than the rest as they were mentioned about 200 times while the other two had less than 100 entries.

1) Communication Opportunities

There was an overwhelming demand for more communicative opportunities in English learning. As revealed in the questionnaires, the students were relatively much less concerned about the *knowledge* of the language (grammar and vocabulary) than the *use* of it (writing and speaking). What they most needed at this stage of learning was to use the language to communicate with others which was the ultimate purpose of a language. They mentioned 5 kinds of communication opportunities they would like to have: communication with native English speakers, tutors, online, voice conversations in NCE Online, and general speaking practice.

Many students were aware that they often had 'a psychological barrier' from speaking out in English. They also recognized that there were no conducive English-speaking surroundings where they could be immersed in authentic English use. They hoped the university and their teachers could give them more encouragement and create a naturalistic linguistic environment for them.

The most recurring need reported was face-to-face communication with native speakers. To have native-speaker friends or mutual tandem learning partners was the most desirable. Some of them even hoped they could have chances to live along with English-speaking friends or in a similar environment. To have a native-speaker tutor was also seen as very helpful. However, many realized that such in-person communication with native-speakers was very difficult to achieve in the university where the number of English-speaking foreign students or tutors was extremely limited. Therefore, they looked to the Internet which might offer a better potential for providing channels of meeting and communicating with English native-speakers. However, they apparently did not think they could obtain such chances on their own. They expected the university, the teachers and NCE Online to provide such opportunities. For example, some students suggested the university should offer more oral English courses, especially those taught by native-speaker tutors, and the Foreign Languages College should not reserve some important human and library resources to themselves only.

While linguistic authenticity of communication seemed to be the students' major concern, they would also like to have more chances to communicate with their English teachers as well as some specific speaking practice such as pronunciation training.

A certain number of students pointed out they wanted to have more chances to communicate with native-speakers through the Internet, but text-based synchronous/asynchronous communication did not seem to be sufficient for them. Some of them specifically suggested that NCE Online should have voice chat facility. Many students were not satisfied with the 'Online Community' module (text-based forums and chatrooms) in NCE Online. On the one hand, the students did not think 'Online Community' provided any genuine and interesting themes for them to be engaged in discussing with each other. On the other hand, they expected their tutors to give more instructions and guidance, participating as moderators and assessing their performance. They did not feel that pure text-based communication was 'real' enough to really improve speaking fluency. There was also a strong notion that they did not want to communicate with anyone at random. Rather, they expected to 'talk' with peers of higher English levels, their teachers or native-speakers. Therefore, NCE Online's 'Online Community', an area without specific themes and proficiency classifications, was not seen as useful by these students who were also keen on having tutors' intervention and evaluation. Since they could not manage to conduct online communication with native-speakers on their own and neither did NCE Online provide any specific communicative activities, this may explain why in the questionnaires the students' ratings for the usefulness of online communication for English learning had dropped considerably over a year.

2) Learning Resources

The second most important need was more authentic English materials, especially multimedia resources. According to the students, most of the learning materials available to them at the moment were artificial, irrelevant to their real life, and remote from their personal interests. They were aware that there was an enormous bank of digital resources available through computers and the Internet. They would like to have considerably more multimedia resources such as English films, songs, speeches, and online broadcasting. They suggested that NCE Online should mainly provide such resources in a systematic manner as they themselves were often unable to evaluate and organise the resources available online. For example, NCE Online could incorporate some established multimedia-based English learning programs, e.g., Family Album USA, or allow students to connect to such authentic sites as BBC (since the students could not access network beyond the intranet very easily).

Another important type of resource the students needed from NCE Online was good referencing and annotation facilities. The commercial e-dictionaries available in the market had become very sophisticated in helping learners understand, memorise and personalise vocabulary knowledge. Hence, the students expected the online system to have similar capabilities which could personalise their vocabulary learning within the College English learning context.

The students also would like to have a good number of online tests and exercises in NCE Online. They were in great need of more reading and listening exercises. However, what they desired most was a collection of the previous English exams, mock tests for the national CET4/6 or international tests such as IELTS and TOEFL. As we may see in the interviews later, the students did not think their exams tested real-life use of the language. Nevertheless, being very methodical and purposeful learners, they would still like to have plenty of online tests resources to help them pass exams.

3) Learning Activities for Skills Other than Speaking

Apart from speaking ability, the students also wished to improve other skills such as listening, vocabulary acquisition, writing, and translating. Among them, listening was clearly most students' concern. However, they generally felt they lacked good learning strategies for improving these skills. Therefore, they expected that teachers could conduct more activities that would not only enhance their English skills but also teach them more effective learning strategies. For example, many students hoped their teachers could arrange certain times and places for them to have 'read-aloud' practice. They felt if the teachers could start such an activity, then more and more students would follow suit and make it a regular practice in the end. A few students even mentioned that teachers should pair them up so that they could monitor and prod each other in study. This again suggested that Chinese students feel more comfortable in a collective learning environment where they know everyone else is doing the same thing.

A fair number of students also expressed a wish that they could be given training on taking English proficiency tests. Their scores for proficiency tests such as CET 4/6 or TOEFL would become a very important qualification in many aspects of their lives, such as graduation from the university, going abroad for further studies, or a good job, etc. Therefore, many students were particularly concerned with achieving high scores in these

tests. Hence, the students suggested that the university should provide specialised training courses for different tests.

4) NCE Online Functionality Improvement

The students made many comments on the functionalities NCE Online should improve or incorporate. The most important function they would like to have was to be able to download the resources. Interestingly, two students also suggested they would like to have a platform where students could upload good resources or even personal creations for others to utilise. The second most desirable function they mentioned was to be able to have voice chat in NCE Online. As mentioned earlier, the students were very anxious to have more communication opportunities with others. The text-based communication facilities in NCE Online were not sufficient for them. They would prefer to have real 'speaking' practice through genuine conversations with other people. In addition, they also offered propositions on some specific functionalities that NCE Online should adopt, such as online assignment submission and assessment, teacher-led forums, more interactive components, and more personalised learning processes.

On the whole, the students showed a strong desire to contribute, communicate and share online if proper facilities were available. Therefore, if NCE Online could improve its functionalities and relevant learning activities to cater for such needs, not only the students might hold a more positive attitude towards it and CALL in general, but also they could be trained to be more proactive and collaborative in learning.

Summary

The above discussion presented a detailed profile of the Chinese learners in terms of their learning styles, computer experiences, perceptions and views on E-learning and CALL in general and NCE Online in particular. Even though the students were technically and psychologically ready for extensive use of E-learning in their university study, still the following two comments from the students should probably be borne in mind by all the educators:

- *'Learning via computer and networks has a fairly high requirement on self-control.'*
- *'I feel I can often spend a lot of time studying English through NCE Online without realizing it.'*

Such perceptions showed a very realistic picture of learning conducted on computers, which has crucial implications for both tutors and learners who want to utilise CALL. The message

here is clear that neither the tutor nor the learner should take up CALL as an instantly-effectual panacea for all the language learning and teaching pains. It does not only help learners in many ways, but also require them to adjust to this particular medium in many aspects. As any other educational media, the effectiveness still largely lies within the pedagogical approaches of the teacher and its fitness with the strategies and autonomy of the learner. The only difference between ICT-enabled learning and traditional classroom learning is probably the former has the potential to accommodate more and enhance the learning experience for more learners. When the learner is highly positive about the usefulness of a CALL system, s/he would be very likely to be voluntarily immersed in the environment for an extended length of time.

Chapter 5 Questionnaire Analysis

The 2nd Year Students (Y02)

Two separate samples from the second-year students population (Y02) completed 2 questionnaires: Questionnaire 02 (Pilot) in 2003 (hereafter abbreviated as Q02P and Questionnaire 03 (Online) (hereafter abbreviated as Q03) in 2004. Q02P was originally not going to be analyzed as an independent study as it was designed as a pilot. However, because of the implementation of Q03 which consisted of many identical or similar questions, Q02P has become a very interesting comparison to Q03. This part will start with a comparative study of these two questionnaires, and then proceed to an analysis on Q03 separately.

Part I: Questionnaire 02 (Pilot) vs Questionnaire 03 (Online)

Since Q02P was filled in by the Y02 students (N=344) at the beginning of their second academic year's study while Q03 (N=860) was done at the end of that year, this analysis between Q02P and Q03 is a comparison over a one-year span. It is very similar to the comparison between Q01 (2003) and Q02 (2004) which spanned over the first academic year of the Y03 students. However, this will not be a matched comparison as the participants who completed Q02P and Q03 were not the same ones. Nevertheless, it may be useful to find out if these two cohorts of students had changed their attitudes and behaviour in similar patterns over the same length of time.

5.1. Computing Experience

Computer Ownership

As in previous analyses, a question was asked whether the participants owned computers in their dormitory rooms.

Table 31: Computer in Dormitory

		Q02P (%)	Q03 (%)
1	**Not Buying**	4.6 ←	2.2
2	**Buying Soon**	3.1	3.3
3	**Use Others**	25.6 ←	13.8
4	**Let Others Use**	7.1	8.5
5	**Completely Own**	59.6 →	72.2

The arrows in Table 31 highlighted that both students who would not buy computers and who used others' or home computers decreased by about a half: 'Not Buying' from 4.5% to 2.2% and 'Use Others' from 25.0% to 13.8%. The percentage for 'Completely Own', on the contrary, increased from 59.8% to 72.2%. There was a tiny increase in the percentage of students who let others use their computers (from 7.1% to 8.5%). This may imply that the remaining students who were not in possession of computers were increasingly using their classmates/roommates' computers. Altogether 80.7% (72.2%+8.5%) had ownership of computers by the end of their second academic year.

Network Connection

A question about network connections to computers in students' dormitory rooms was then asked in both questionnaires. For reasons mentioned in Chapter 4, there were only 3 options for the question in Q02P, whereas, Q03 had one more option: the intranet and the national network (see Table 32). The overall pattern did not change much: more than 90% of the students had access to more than the intranet, and only a small number of students either had the intranet only or had no network access at all. However, at a micro level, there seemed to be some interesting shifting among the 4 categories.

Table 32: Network in Dormitory

	Q02P (%)	Q03 (%)
No Network	5.5 ←	0.3
Intranet Only	2.9 →	9.3
Intranet&National	N/A	20.7
Intranet&Internet	91.6	69.8
Total	100.0	100.0

In Table 32 we can see that the number of students who did not have any network connection had dropped dramatically from 5.8% to 0.3%, which meant the students who did not have network access had become almost non-existent. In contrast, the students who had intranet connection increased just as steeply (from 2.8% to 9.3%). The percentages of the students who had network beyond the intranet were almost the same: 91.4% in 2003 and 90.5% in 2004 (20.7%+69.8%). Overall, the statistics seemed to indicate that either most of the new users had chosen to access the intranet only or a fair proportion of the old users of the national network and the Internet had reverted to using the intranet only. This increase in intranet connection alone may have much to do with the tiered network charges.

Computer Use Frequency

Questions were asked about how often the students used computers and the networks for study and recreation. In Table 33, we can spot immediately the sudden rise in the percentages of students who used computers for recreation for over 10 hours: from 18.1% to 37.6%. While '1-2 hours' and '7-9 hours' categories did not change much in 2004, there were fewer students who spent 3-4 hours/week (decreased from 23.8% to 16.7%) or 5-6 hours/week (dropped from 24.7% to 17.5%) recreationally. This indicated that a minority of students remained to have very little recreational computer use whilst more and more students started to spend more than 10 hours/week on computers for recreational purposes.

Table 33: Recreational & Study Use Frequency

	Recreational Use (%)		Study Use (%)
Weekly	Q02P	Q03	Q03
0 hours	0.9	0.7	2.5
1-2 hours	12.5	11.4	27.9
3-4 hours	23.8	16.7	26.5
5-6 hours	24.7	17.5	17.0
7-9 hours	20.0	16.0	10.6
>=10 hours	18.1	37.6	15.5

There was also a clear contrast between study and recreational use in 2004. More than half of the students studied on computers for less than 4 hours/week (2.5%+27.9%+26.5%=56.9%), whereas, more than half of the students have recreational time on computers for more than 7 hours/week (16%+37.6%=53.6%).

Network Uses

The participants were asked to mark as many options as appropriate, among 7 common uses of networks (same as previous questionnaires), to indicate which ones were their major uses. The following figure displayed the ratios of participants who marked each category out of the whole cohort in 2003 and 2004.

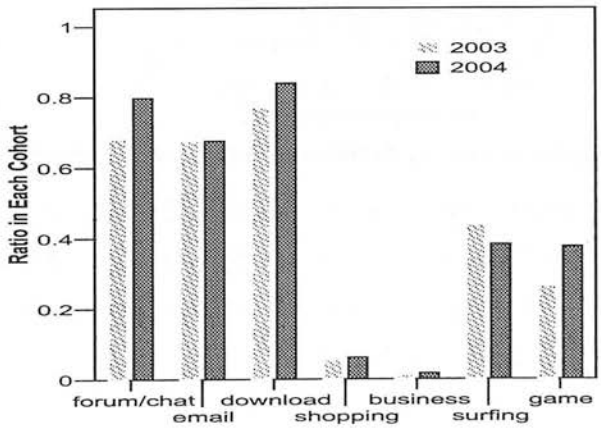

Figure 16: Network Uses 2003-2004

The overall pattern of network uses at these two times had not changed: the first 3 uses (with 'download' dominating) still enjoyed much more popularity than the others; 'shopping' and 'business' were almost non-existent, and 'surfing' and 'game' still staggered behind. However, in 2003, Figure 16 showed 'forum/chat' was used by just as many students as 'email' (about 70% of the whole cohort), while in 2004 there was an apparently increased use of 'forum/chat' over 'email' (about 80%). Moreover, 'game' has caught up with 'surfing' in 2004 while it was well behind 'surfing' in 2003. In fact, 2004 saw a slight drop of 'surfing' use among the students.

Self-reported Computer Competence

The participants were asked to rate their own competence in 7 common computer applications. The overall competence scores were the sum total of the 7 items, which ranged from the minimum 7.0 to the maximum 28.0. It seemed that the participants' self-assessed competence did not change much from 2003 (Mean=20.9, Median=21.0) to 2004 (Mean=21.9, Median=22.0). Moreover, Figure 17 showed that the patterns of the distributions of competence scores for both years were almost identical, suggesting that there was no drastic changes among students with different computing abilities. That is, according to their self-evaluation, the proportions of students at different computing levels remained the same within the population.

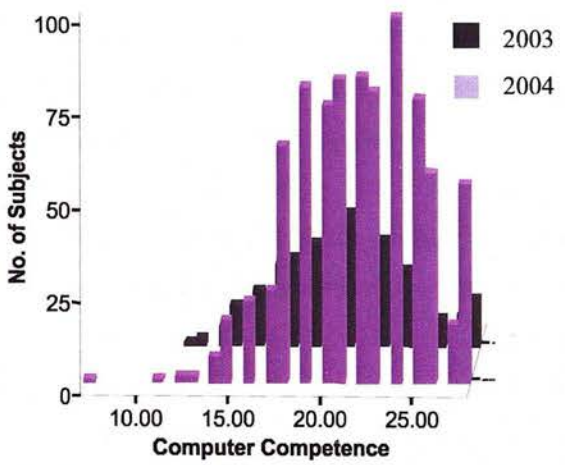

Figure 17: Self-reported Computer Competence 2003 vs. 2004

When comparing each application separately, some minor changes in some areas were detected. On the whole, same as in 2003, web browsing, email and chatting were the three computer applications that the students were most familiar with in 2004. The mean scores for these skills were beyond 3.0 and the medians all at 4.0. The self-evaluated competence for webpage design and image editing was still relatively much lower (Median=2.0).

However, the increase in skilfulness for word processing (means from 3.34 to 3.53) and presentation software (means from 2.76 to 3.0) was more noticeable than the others. Especially for word processing, not only the mean score had improved, but also the median score had risen from 3.0 to 4.0, indicating that the majority had become very proficient in using word processing software such as Microsoft Word.

5.2. English Learning

Language Skills Difficulties

The students were asked to rank these five aspects in their language study: vocabulary acquisition, grammar, listening, writing and speaking skills. The students had to rank them according to their difficulty from 1 (easiest) to 5 (the most difficult). Because it was a ranking activity, the students were 'forced' to choose a different number for each of the 5 aspects. Especially in the online Q03, whenever they picked a repeated number by mistake, a pop-up window would appear to warn them that they had chosen that number already and they must choose a different one.

Vocabulary and grammar (Medians at 2.0 or 3.0) remained relatively easy aspects in their language learning, listening and writing (Medians at 3.0) were of medium difficulty, and speaking remained the most difficult (Median=4.0). Both the means and medians of 'Grammar', 'Listening' and 'Speaking' showed that they did not become easier or more difficult to these students after a second year of study. 'Grammar' seemed to be the least of the students' concern all the time. This may imply that these university students were confident in their learned linguistic knowledge of the language, but they were more concerned about the acquired knowledge and output of the language (e.g., speaking and writing). As they went through their English course, they found increased difficulty in vocabulary acquisition. For vocabulary, not only the mean scores in the two years increased to a fair degree (from 2.57 to 2.92), but also the median scores escalated from 2.0 to 3.0.

Favourite English Learning Mode

Both questionnaires asked the students to rate their favourite learning modes. Q02P provided 5 choices: face-to-face (F2F) classroom learning only, mainly classroom with some online self-study, equal amount, mainly online self-study with some classroom contact, and online self-study only, but Q03 added another option---online self-study + online tutoring. The number of students accepting classroom teaching only hardly changed over a year, but a

marked percent of students had moved towards more online-learning-oriented end of the scale. As indicated by the arrow in Table 34, although the percentage of students who chose to have classroom as their main learning mode still remained dominant over other modes (35.7%), it had decreased significantly compared to its percentage (50.2%) in 2003.

Table 34: Favourite English Learning Mode

English Learning Mode	Q02P (%)	Q03(%)
1. Classroom Learning Only	4.7	5.1
2. Classroom>Online Self-study	50.0 ←	35.7
3. Classroom=Online Self-study	18.0	15.7
4. Online Self-study>Classroom	17.3	19.0
5. Online Self-study & Tutoring	N/A	17.6
6. Complete Online Self-study	10.0	6.9

If we collapse the last three categories (shown as the two circles in the table) into one category to show the students' inclination of having more online English study than classroom learning, we will find that only 27.3% (17.3%+10.0%) in 2003 had such a preference, but in 2004, 43.5% showed they preferred to have a bigger portion of online learning in their English study. This has very positive implications for the development of CALL. At the very least, this suggested that it was not because the students did not like this kind of learning mode if they had not made much use of NCE Online.

Part II: Questionnaire 03 (Online) (Y02 Only)

This part is an analysis of the questions in Q03 that were distinct from Q02P. The data here were from Y02 students only (N=860) as opposed to the whole group of the participants because Q03 had been completed accidentally by a large number of Y03 students as well due to its online public access for everyone.

5.3. English Learning Media

The students were asked to mark how their frequencies for utilising the following 6 kinds of media had changed over one academic year: 1) printed materials, such as textbooks; 2) pre-recorded materials (non-digital), such as tapes; 3) broadcast programs, such as radio and TV; 4) CD-ROMs, such as stand-alone software; 5) networks; 6) extra training/Private tutoring. They could choose one of the four options for these 6 categories: 1=Decreased use; 2=Increased use; 3=No change; 4=Never used it.

'Printed materials' was the only category where 'Decrease', 'Increase' and 'No change' each shared one third of the whole cohort. 'Additional training/Private tutoring' was the only category that had more 'Decrease' than 'Increase', and all the rest 4 categories had more 'Increase' than 'Decrease'. Among them, 'CD-ROMs' and 'Networks' had very outstanding proportions of 'Increase' (46.5% and 71.9% respectively), as shown in Table 35. Networks seemed to be the most popular type of medium in English learning. Hardly anyone had never used it (1.5%) or decreased its usage (7%). In contrast, CD-ROMs, although still more popular than the other media, saw a 13.2% of the cohort who had never used them and 12.5% reduced their usage.

Table 35: English Learning Media

Frequency of Use	CD-ROM/Software (%)	Networks (%)
Decrease	12.5	7.0
Increase	46.5	71.9
No change	27.9	19.6
Never used	13.2	1.5

Therefore, on the whole, all other learning media had suffered more or less loss in the amount of usage in English study, but networks kept enjoying more and more popularity.

The students had been using computers and networks for their study not only for the English course but also many of their major courses. Both Q02 (2004) and Q03 asked the participants to indicate how willingly they had been utilising computer-assisted learning. Although both questionnaires were conducted at about the same time, the former was from the first year students (Y03) while the latter was from the second year students (Y02). The following table indicated that the younger students showed a stronger tendency to use E-learning materials voluntarily (27.0%+39.0%+5.2%=71.2%) than their older peers (33.6%+21.0%+10.2%=64.8%).

Table 36: E-learning Voluntariness

	Q02 (2004) (Y03) (%)	Q03 (Y02) (%)
Completely required	2.9	4.4
Mostly required	25.9	30.8
Required=Voluntary	27.0	33.6
Mostly voluntary	39.0	21.0
Completely voluntary	5.2	10.2

5.4. NCE Online Use

Since it has been found previously that about 80% of the students owned computers in their dormitory rooms, it was not surprising to find that only very few students accessed NCE Online from the computing labs (N=66). As almost all the students lived in university dormitories, they usually would not be able to use their home computers either. The vast majority accessed NCE Online either from their dormitories (N=630) or when having their English classes (N=559).

Frequency of Use

As explained in Chapter 3, Q03 was carried out due to the new university policy that one third of every course must involve E-learning. Therefore, the researcher was interested in finding out how much NCE Online was used in and after class under this policy.

Table 37: In & After Class NCE Online Use Frequency

In Class	Percent (%)	After class	Percent (%)
Hardly Any	6.4	**Hardly Any**	10.2
Several Times	11.9	**Several times**	46.4
1-3 Times/Month	25.2	**Several Times/Month**	28.9
Once/Week	31.4	**Several Times/Week**	13.2
Every Lesson	25.1	**Daily**	1.3

Table 37 showed that over half of the participants accessed NCE Online in class more than 1-3 times a month. On the contrary, the frequency of its use after class was very pessimistic. About 10% of the students hardly used it while nearly half of them had only used it after class for a few times over the last year. The teachers' relatively frequent use of NCE Online in class might have much to do with the university policy, whereas, the students had not made regular use of it voluntarily after class.

Pearson correlations were run between after-class use frequency and teachers' encouragement and in-class use frequency. Teachers' encouragement was measured by how often they recommended their students to use NCE Online. The three frequencies were all significantly and positively correlated to each other. It seemed, the more often the teachers used the system in class, the more likely the students would use it after class ($r=.33$, $p<0.01$). However, teachers' recommendation seemed to have a relatively weaker influence on the students. It had a small contribution to the frequency of their students' voluntary use outside the classrooms ($r=0.15$, $p<0.01$).

NCE Online Usability

The students were favourable of CALL, but they did not make use of NCE Online very often. Could it be that it was technically difficult to use or not very user-friendly? NCE Online's usability was investigated through 12 statements rated on a 5-point Likert scale from 1 ('Strongly Disagree') to 5 ('Strongly Agree'). The statements were concerned with the interface, infrastructure, navigation, general ease of use, general comfort, logicality of the menu, help information, system flexibility, ease of information searching, font size, error tolerance, and system stability.

Almost all the statements except 'Error tolerance' and 'System stability' obtained very high ratings with means well beyond the medium 3.0 or even 4.0 and medians all at 4.0. This suggested a very good level of ease of use on the whole. However, we must bear in mind that these participants had not been using the system very regularly, so their evaluation here might have been more of speculations rather than well-informed judgments. Moreover, under a situation where they might not know much about the issues concerned, Chinese culture may have led the students to agreeing rather than disagreeing. In fact, the analysis of the open questions in Chapter 4 and the interviews revealed some more problematic usability issues.

Nevertheless, among all the high ratings, two aspects stood out as relatively much lower: 'Error Tolerance' (Mean=3.48, Median=3.0) and 'System Stability' (Mean=3.3, Median=3.0). This indicated that the system could not recover itself very well or give useful instructions if a student had committed improper operations by mistake. Meanwhile, system stability is almost the most important factor for successful running of an online learning environment. Considering most students only accessed NCE Online a few times over a year, such a low 'System stability' rating seemed to be very critical. The qualitative data analysis later will confirm this, too.

NCE Online Liking & Helpfulness

There were 3 statements measuring how much the students liked NCE Online on a 5-point Likert scale (from 1 being the lowest rating to 5 the highest). They all obtained high ratings with means over 3.0 or 4.0 and medians at 4.0 or even 5.0. Another 6 statements were presented to find out how helpful the students thought NCE Online was. They obtained overall positive ratings, too. The means of almost all the statements are over 3.6. An exception was that one statement only achieved a median of 3.0 while the rest were 4.0. The statement was 'NCE Online has increased opportunities to communicate with others in English, which helps improve my fluency.' Compared with the other 5 statements, the mean (3.07) and median (3.0) of this statement were rather low. Therefore, the students did not seem to think NCE Online provided sufficient communicative chances even though it had an 'Online Community' module to facilitate communications among students or between students and teachers.

It was tested whether the students' liking and their perceptions of helpfulness of NCE Online had relations with their frequency of using it after class (on their own). The following table showed that there were moderate to strong correlations between them.

Table 38: NCE Online Liking & Helpfulness by Use Frequency

NCE Online	NCE Online Use After Class	Liking
Liking	.31(**)	--
Helpfulness	.26(**)	.65(**)

All three correlations were positive and significant at $p<0.01$ level. It was difficult to tell which one was the causal variable, and the influence might have been mutual between one and another. What should be borne in mind was that the correlation between the after-class use frequency and 'NCE Online Liking' or 'Helpfulness' was only of moderate power, suggesting that they were not the major cause for each other.

Moreover, the students' degree of agreement with two statements concerning NCE Online liking and helpfulness was of particular interest.

Table 39: Two Statements about Liking and Helpfulness of NCE Online

Statement	Mean	Median
1. Having such a network-based learning environment is a good thing.	4.65	5.00
2. NCE Online helps with my English study more effectively than those printed learning materials.	3.64	4.00

In Table 39, statement 1 achieved a mean of 4.65 and a median of 5.0. This demonstrated that the students were overwhelmingly positive about the existence of NCE Online. Nevertheless, they were much less certain about whether it was better than paper-based materials (Mean=3.64, Median=4.0). This could be related to the fact that they did not use NCE Online very often, and the previous analyses have found that they still used paper-based materials most often in their self-study time.

Reasons for Not Using NCE Online Regularly

The analyses so far have demonstrated that network-based English learning was a very acceptable form to the students. They liked NCE Online and found it helpful to a certain degree, yet they only accessed NCE Online voluntarily for a few times in a year. What were the reasons behind this apparent incongruence? Based on the interviews carried out a year earlier, a list of 6 possible reasons was given in the questionnaire: not enough time, not helpful for exams, home/dorm network connection too expensive, lab access inconvenient, lab access too expensive and labs too crowded. Additionally, a blank box was included for the students to write down any other reasons they held.

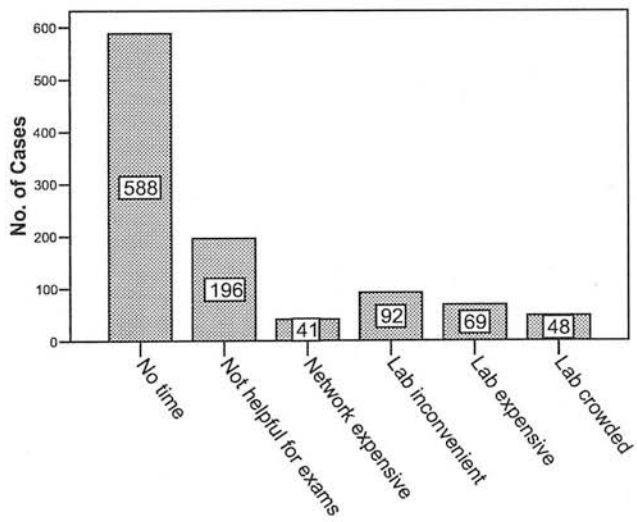

Figure 18: Reasons for Not Using NCE Online

As we can see in Figure 18, the most dominant reasons were 'Not enough time' and 'Not helpful for exams'. Since NCE Online was not a place where students could get specific training for taking exams and neither was the work done on it counted towards their final assessment, there was little wonder that 'Not helpful for exam' was one of the major reasons. However, the reason 'Not enough time' may call for a second thought since it was discovered earlier that students had spent considerably more time on computers for recreational purposes. This will be further discussed in the interview analysis in Chapter 6.

Part III: Questionnaire 03 (Online) (Y02 &Y03)

This part of analysis uses data from both Y02 and Y03 students who participated in the online questionnaire.

5.5. Learning Styles

Due to Q03's ease of implementation and potentially wide coverage of different types of learners, it was decided that it would be suitable for another confirmatory investigation on Chinese students' learning styles.

As discussed in the analysis on Q01 (2003), five dimensions were discovered in these Chinese students' learning styles: methodical—emergent, open-minded—close-minded, extroverted—introverted, high—low ambiguity tolerant, and proactive--passive. To be specific, the students showed a tendency towards being:

- very methodical, which meant they were planful, purposeful, and they would prefer to think about or do things sequentially rather than at random;
- closure-minded, which meant they would value the result more than the process, and they were more concerned about the correctness rather than the originality;
- introverted, which meant they were not gregarious, they preferred to work alone or be with a small circle of intimate friends;
- passive, which meant they were submissive, liked to follow others, and would rather be compliant when there were controversies.

In order to ascertain the validity of these style tendencies emerged in Q01 (2003), the researcher decided to test students again on 3 dimensions with 8 question items in the online questionnaire. However, this time the common bifurcate scale was used instead of a 5-point Likert scale. The reason for 'forcing' the participants to pigeonhole themselves into one of the two choices for each item was that, since Q01 (2003) has revealed the general tendency for each dimension, this investigation only needed to testify upon which extreme of a dimension the majority of the participants would place themselves.

All the questions were answered by at least 1349 students out of 1406 in total. Only frequency percentages will be used in the following discussion to indicate the general tendency. There were three major findings:

1) These students showed very strong tendency to be methodical and sequential. 68.5% of them preferred to fulfil a task in a step-by-step manner, and 58.8% of them reported often being too concerned with the details rather than the global view.
2) They were very accepting in general situations. They would rather listen (74.8%) than initiate a talk (25.2%). More students would choose to accept (53.6%) rather than to question and challenge (46.4%) what they heard or read. However, if they were working to solve a problem in a group in class, they would be happy to contribute their ideas and suggestions (71.1%).
3) As for their gregariousness, they showed a consistent preference for being introverted in most situations. For example, they would choose to sit at less conspicuous positions in a classroom (62.5%) rather than in the middle of it. The majority of them (68.7%) preferred to study alone when studying after class. Although 63.5% of them thought it would be helpful if the teacher could organise more groupwork *in class*, it was a different matter for after class. When asked how they would like to fulfil a team project work outside the class, 54.9% chose the option 'divide the project into small tasks and everyone works on one or two tasks independently' while 45.1% preferred to work with the others closely.

These results confirmed the findings in Q01 (2003). These distinct characteristics of Chinese learners will be one of the major focuses in the discussions hereafter in relation to their attitudes and behaviour towards CALL.

5.6. Most Frequently Used Learning Media

Q03 asked students to write down (or 'type in' in this case) the learning media they used most often, and then state a brief reason. The popular learning media mentioned by the participants were printed or paper-based materials, resources from networks, recorded materials (such as tapes) and broadcast programs (such as TV).

Table 40: Frequently Used Learning Media

Medium	Paper-Based	Network	Recorded	Broadcast
User Frequency	319	124	68	49

As shown in the table, paper-based materials were by far still the most frequently used type of medium (N=319). Network-based resources also enjoyed a fair amount of frequent use. The reasons for the high utilisation of these two media will therefore be explored hereafter.

Paper-Based Materials

The previous questionnaires have indicated that the students regarded paper-based materials the least attractive when compared with the other learning media. Then, why did they still

use paper-based materials most often? Three major reasons were found in students' answers: a) paper-based materials were the most convenient, easier to carry around whenever wherever they liked; 2) they were more practical; one can buy many of them easily from many sources; 3) they were more traditional, therefore they were more comfortable to use (e.g., easy to mark or write notes on, and not straining the user's eyes) and psychologically more acceptable.

Table 41: Reasons for Using Paper-Based Materials

Reason	Convenient	Practical	Traditional
Frequency	157	38	53

Clearly, convenience was by far the most important reason (N=157) compared with the other two (see the table above). It seemed that, to many students, books were still the most portable and accessible media. This may have much to do with the fact that the students did not yet have very mobile technologies in their learning environment. For instance, the majority of them had desktop PCs which they could not take with them to wherever they preferred to study. In contrast, books were readily available everywhere, could be carried to wherever they went and used in the traditional ways that they had been comfortable with for many years.

Resources from Networks

Funnily enough, the most frequently cited reason for using network-based materials was also convenience, albeit in a very different sense.

Table 42: Reasons for Using Network-Based Materials

Reason	Convenient	Abundant	Effective	Motivating	Frequent Contact	Cheap	Flexible
Frequency	56	17	12	9	8	7	6

As indicated in Table 42, there were 7 main reasons why some students used networks most often for their English study: 1) they were more convenient; 2) there were rich varieties of English learning resources available online; 3) they were more effective in enhancing learning; 4) they were more interesting and motivating; 5) these students were in frequent contact with computers and networks every day, so it was natural for them to turn to networks for everything they needed; 6) they were much cheaper compared with books or other media; 7) they were more flexible to use.

This type of medium was also regarded as very convenient precisely because it could be accessed anywhere anytime the students wanted. That is, as long as there was a computer and network connections, students could access such learning materials whenever and

wherever they were. Whereas, with books, a learner would have to have them physically with her/him to be able to use them. Apparently, to a fair number of students, computers and networks were so readily available and were used so much in their daily life that they felt more inclined to use computers than books. In addition, the easy access to an abundant source of authentic English text, audio and video materials which could be much more interesting and effective than books alone was also an important reason. Due to their digitalized nature, resources from networks could be easily transferred into students' personal portable devices, such as an mp3/mp4 player, which enabled them to access even more conveniently. Also digitalized materials were much more flexible to manipulate, e.g., the pace, the combination of different materials. Furthermore, it is well-known that the resources online are mostly free, therefore, to many students, this was the most economical medium for their study.

Part IV: Discussion

The analysis of Q02P and Q03 mainly served the purpose of confirming findings with Y03 students. While Y02 students showed remarkable similarities with Y03 students, they also revealed some differences and may be predicting the patterns that Y03 students would be developing when they progressed to the same academic stage.

5.7. Learning Styles

Q03 validated the major findings about learning styles from Q01 (2003). Even when measured with a different style construct, the Chinese students showed an apparent tendency to be methodical, introverted, closure-oriented and passive. In general, they would prefer to work alone if no collaborative work was required, they were likely to be sequential learners with a very methodical and purposeful strategy which would help them achieve accuracy and correctness, and they would rather follow others and look to teachers for instructions and learning directions. However, they had good tolerance for ambiguity in learning, which means they were conscientious learners who would like to be challenged with new knowledge and difficult tasks. They also acknowledged the benefits of collaborative work, which indicated that their preference for working alone could have much to do with the way they had always been educated since primary schools. They would be willing to work with others if they were so instructed by teachers.

5.8. Computer Experience

Y02 students (with Q02P in 2003) and Y03 students (with Q02 (2004) in 2004) showed many almost identical computing patterns when at the same academic stage. Hence, what Y02 students experienced in 2004 may be predictive for what Y03 students might do in 2005.

Computer & Network Uses

At the beginning of their second year in 2003, Y02 students showed very similar patterns of computer ownership to Y03 students in 2004—the majority owned computers privately, but about a quarter of them were still using others' computers conveniently. However, at the end of their second year in 2004 the number of Y02 students who used their own computers

exclusively continued to increase while those who used other students' computers decreased. Moreover, the number of students who did not want to purchase PCs decreased to half of the original 2003 percentage. We may say that this change was very likely to happen to Y03 students when at the end of their second year in 2005. Although both cohorts had more than 90% who had network access beyond the intranet, slightly more Y02 students (5.5%) had no access to any network in 2003 than Y03 students (0.7%) in 2004. This suggested that the younger Y03 students had adopted IT utilities more quickly.

The patterns of the seven common network uses—forum/chatroom, email, download, shopping, business, surfing and game—changed in almost exactly the same manner for Y02 and Y03 students, except that less Y02 students were surfing the net while more started playing games in 2004. The same situation might happen to Y03 students a year later. Y03 students showed a marked increase in time spent on computers for recreational purposes—about a quarter of them were over 10 hours per week. Y02 students had similar use frequencies in 2003, however, the percentage of the students who used computers recreationally over 10 hours per week continued to increase to more than one third of the cohort in 2004. Therefore, Y03 students may keep increasing their recreational use in their second year's study as well. In contrast, both cohorts spent considerably less time on computers for study purposes.

Self-reported Computer Competence

The previous analysis has shown that Y03 students' self-assessed computing ability improved remarkably after their first year of study. In contrast, no significant difference appeared in Y02 students' self-assessment after their second year. This suggested that, after the students' computing skills improved initially because of increased use of computers in study and daily life during their freshers' year, their computing proficiency stabilised since it was probably sufficient for them to get through the rest of their university study.

5.9. English Learning Experience

After two years' study Y02 students continued to feel that writing and speaking were the two most difficult aspects of English learning while vocabulary and grammar were relatively easy. Both Y02 and Y03 cohorts noted the increasing difficulty with vocabulary acquisition. Moreover, both cohorts showed almost identical changes in the way they utilised different types of media in learning. In 2004 a substantial number of Y02 students increased using

CD-ROMs and networks for their English study. As we have already seen such an increase with Y03 students in their first year, we might predict that they would continue to use these media increasingly just as Y02 students.

5.10. E-learning & CALL Experience

Compared with Y03 students, the Y02 cohort reported less voluntariness for making use of E-learning materials provided by the University. Among Y03 students, the group who thought they were voluntary most time was the largest group, whereas among Y02 students this group took up less percentage than the group who claimed to use E-learning mostly because of university requirements. When asked to indicate their favourite English learning modes, 43.5% of Y02 students preferred to have a larger proportion of online learning than classroom learning in 2004, which was a remarkable increase from 27.3% in 2003. Similarly, although only 31.3% of Y03 students preferred more online learning in 2004, it was very likely that they would manifest the same kind of rising interest in 2005 when they were at the end of their second year.

The majority of students were highly positive about the existence of such an online learning environment as NCE Online. However, they were much less affirmative about its usefulness compared with paper-based learning materials, and there was an apparent underuse of the system. Y02 students used it mainly in the English class and they had generally only used it a few times in total after class. Their after-class use frequency was found to be strongly correlated with their teachers' recommendation, and it also had moderate positive correlations with how useful they considered NCE Online to be and how much they enjoyed using it. The reasons for the underuse were concerned with both the system usability and the users' circumstances. The overall usability of the system seemed to be satisfactory except its stability and error tolerance. The unreliable availability of the system seemed to be a major hindrance (see more discussion in Chapter 6). The other reasons the students mentioned included time limitation, inconvenient and expensive lab access, expensive network costs and unhelpfulness with exams. Time pressure and unhelpfulness with exams were by far the most frequently cited reasons. This corresponded with Y03 students' comments that they did not make the same effort for English study as they did for other major courses. In other words, neither cohort of students had regarded the English course as a priority or was willing to spend more time than absolutely necessary, especially when they did not see any direct benefits for exams from using NCE Online.

Chapter 6 Interview Analysis

The 1st & 2nd Year Students (Y02&Y03)

Part I: Student Interviews

Group interviews were conducted with both the first year students (Y03) and second year students (Y02). Although the interviews were done in two different years, the two cohorts were at the same stage of their academic life when interviewed. 5 group interviews were carried out with Y02 when they were at the beginning of their second year of study in 2003 and 4 more group interviews were carried out with Y03 students when they were just about to enter their second year of study in 2004. Each group had 4~6 participants volunteering from a few classes at different proficiency levels and taught by different tutors. The instruments used at the two times were not identical, but both investigated English learning, computer use and use of NCE Online.

6.1. English Learning

The majority of students had had 7 years of English study by the time they were interviewed, which meant they started learning English from secondary school. However, there were a small proportion of students (about 25%) who started from primary school or even kindergarten with some informal learning. Thus, students' experience with English, formal or informal, ranged from 7 years to 19 years.

Y02 interviewees were asked which aspect of English learning they were most confident in and had most difficulties with. More students were more confident in reading comprehension than the other aspects such as grammar, vocabulary or listening. This was probably due to the fact that reading was normally the skill their formal English education at school had put most emphasis on. One student commented, 'There is not much oral English communication usually, so I spend more time reading.' The few people who mentioned reading as the most difficult area explained that:

- *'It's not very difficult to understand a reading passage, but to find the right answers for the comprehension questions is very difficult. Sometimes, I can understand what a passage is about, but often can't understand the questions properly and can't find the correct answers.'*

This revealed some disparity between what exams try to test and what students are really capable of. Another finding of interest is that there were same numbers of students who

were most confident in speaking and those who found it most difficult. The common characteristics of the students who were confident in speaking were that they were either highly motivated in practicing speaking or they had had a certain amount of oral English training or practice in previous education. Whereas, for those who found speaking the most difficult, it seemed the reasons were precisely because they had not had much oral English experience previously, and did not find sufficient opportunities to practice it at university either. In other words, there was not an environment which would help them start and overcome their shyness for speaking up, and provide naturalistic circumstances for them to speak English. The following two comments were very typical:

- *'Mainly because we don't have such an environment to practice in. Nobody speaks. If everybody starts to speak, then there will be a kind of atmosphere, and then everyone will be able to talk freely without feeling embarrassed and form a habit of speaking. However, right now, it's just so difficult to open our mouths. We just don't know how to create such an environment.'*
- *'I think sometimes I need some help from the teacher. I wish the teacher could give me some guidance in speaking.'*

Many students regarded grammar as difficult as speaking, however, it was not what they were most concerned about. Compared with other aspects, 'grammar is much neglected', as one student pointed out. Another student echoed, 'It is needed for English exams, but it hardly needs to be taken into consideration for other times in our study.' The difficulty was mainly from their realisation that grammar had become much more flexible or 'capricious' in their more extensive learning at university compared with their limited exercises at secondary schools.

The most interesting finding was the paradoxical response about vocabulary. Even when a few students were ranking vocabulary as their most confident area, they were actually pointing out their difficulties with it:

- *'I can spell many words correctly, but can't pronounce very accurately.'*
- *'For normal daily life conversation, using the vocabulary is not a problem, but when we need to write something formal, I find my vocabulary not big enough'.*

While some students found that they had to learn a large number of vocabulary and felt memorising them was 'most painful', some students reckoned the problem was not the quantity of vocabulary, but to know how to use the already-acquired words properly. On the whole, it seemed vocabulary, speaking and listening were getting relatively more difficult in their English study, with grammar or writing still posing problems for some students at times. This corresponded with the results from the questionnaires.

Y03 interviewees were then asked which skill(s) they would like to improve most. Listening and speaking were reported as the most emphasized areas, while vocabulary was a crucial factor affecting reading ability. As one student put it, 'for exams, [what needs improving most is] listening, but for actual life, it is speaking'.

As the questionnaires had indicated a decline in students' interest in their English study, Y03 interviewees were also asked about their attitudes towards English learning. The interviews confirmed a general low level of interest. Many claimed they were mainly taking the course for the sake of university exams and the national proficiency tests CET 4/6. One student explained:

- *'I may be very interested in reading some articles originally, but as soon as they are taught in the classroom, I'd feel very uncomfortable, bored very quickly and lose my interest. The English study is for exams only, and puts too much emphasis on grammar, so I feel my interest declined. When I first started learning it in middle school, I was very motivated, but as I got through all kinds of tests from middle school, high school to university, I've become less and less interested in it.'*

However, this decline of interest was not reflected in every aspect of language learning. One student mentioned that interest in grammar and vocabulary study had decreased but interest in speaking and listening increased instead. This was echoed in the answers of the few students who reckoned they had become more fond of English learning:

- *'They [the other students] were all fairly proficient when they came to university, so probably are not very motivated since they are already good at everything. However, my English was very poor in high school. It was all 'dumb English' then, ... without speaking. Whereas, now there are a lot of chances to practice speaking, so I'm more and more motivated.'*

It seemed that the overall decline of interest could be attributed specifically to the overemphasis on the teaching of the structural characteristics of the language. While most students who were able to enter this university usually had mastered the basic knowledge *about* English well, they naturally lost their interest when they felt the exams or the teaching was still oriented towards mastery of the structure rather than the actual use of the language. On the contrary, when some students felt they were challenged by a 'new' emphasis on language learning—the real language use in speaking, they still felt motivated. As the English teachers in this university were generally influenced by the communicative teaching methodology, students were usually given a fair amount of time doing communicative activities in pairs or groups in class. However, it seemed, since the exams still had an emphasis on knowledge about language, most teachers, as well as students, might have felt

the need to focus on grammar and vocabulary, which in turn affected students' interest and motivation.

6.2. Computer Use

Some intriguing differences emerged between Y02 and Y03 participants regarding computer use. Interviews with Y02 students revealed that although many of them owned computers, there were still quite a few who did not; whereas, almost all of the Y03 interviewees owned computers although some of them did have a classmate or a friend who did not own a computer. One student's comment corresponded with the results from the questionnaire surveys: 'Most of us did not own computers in the first year, but we do now in the second year.' Even among Y02 interviewees, there also seemed to be 'a digital divide' among them. For instance, one student reported that everyone in her dormitory room had a computer, while another reported that most students of his major (Medical clinics) did not own computers. It seemed, when both in the second year, Y03 students had a much higher rate of computer ownership. However, no matter how many computers there were in each dormitory room, it seemed that the students generally did not feel a shortage of access because they obviously shared computers conveniently, as one student said, 'normally it is good enough if there is one computer in one dormitory room'.

In the interviews in 2004, more questions were asked to probe the reasons why a small number of students still did not purchase computers while the majority of their peers had all done so. It was found that there were three main reasons. The most recurring reason was that some students did not feel the 'need' to own computers. Some majors, such as human resources, did not call for a great deal of computer use for their courses. If these students did need to use computers, they could easily borrow their roommates' machines. Some students did not want to buy computers simply because they feared they might spend too much time on non-study related activities (e.g., surfing, gaming) which would undermine their study. It was mentioned that some parents refused to buy computers for their children for the same reason. The last reason was financial difficulties.

Although quite a few of Y03 interviewees commented that the computer was not 'a must', they did feel a greater deal of convenience after owning computers. Nevertheless, they did not think students who did not own computers suffered much loss:

- *'Although computers are used very often, most time it is for playing games or watching films for which we can share the use of computers.'*
- *'They may get some university news or information slower, but they may gain more because they have more time for study while most students with computers are just watching films and playing games.'*

Both cohorts of interviewees reported that they used computers very frequently. Y02 students mostly used them for accessing learning materials their tutors put online, although some also mentioned using computers for entertainment such as reading news and playing games. The following was a typical quote from the interviews with the Y02 cohort:

- *'Many tutors have their own courseware, websites and even FTP sites, etc., so they often tell us in class: if you can't catch up with what I'm saying now, you can access my courseware online and learn more there. There are a few computers in my dormitory room, and they are highly utilised.'*

In contrast, Y03 students did not think computers enjoyed any major use in their study. They recognized the importance of computers for their study, but they still mainly used computers for recreational activities, such as news, BBS, chat, email, and games. The only exception was the students who were studying computing or electric engineering courses for which they had to write programs or use simulation software on computers frequently. Most interviewees reported that they would use computers more for study when it was the exam time. They would try to access their tutors' online courseware as well as searching for extra learning resources. For example:

- *'It's exam time now, so I start to use the online courseware more, and often search for literature for my dissertation as well. However, the computer is not used very much for study purposes at other times, and the other courses' online courseware are all static webpages'.*

It seemed that most of the E-learning materials they encountered were not motivating enough for them to access them regularly. Nor were they an integrated part of their courses which would compel students to access systematically. Students would, therefore, not pay much attention to them until it was exam time.

The interviews also revealed that the University had a tiered charge system and manual network configuration switch for using the intranet and the Internet (as mentioned in Section 4.19.1). Therefore, both groups of interviewees felt that to go beyond the university intranet was both expensive and inconvenient. However, from the 2004 academic year, the University had stopped charging for the intranet. Yet, students still had to buy 'cards' for using the Internet, and similar to telephone cards, those cards would expire within three

months after purchase. Therefore, they still generally felt the charge for using the Internet was 'not very reasonable', and the procedure for switching between networks was 'a lot of trouble'. Besides, due to the limited server capacity, the speed of the Internet was always very slow. Although many Y03 participants reported they knew how to bypass the Internet charges by going through proxy servers (to some extent, this showed Y03 students were more IT literate than Y02 students), on the whole, all the students tended to use the intranet most of time, and only accessed the Internet when truly necessary. They suggested if the University could charge a fixed fee for using the Internet as well, they would be using it much more often.

6.3. Learning Media and Resources

When asked what they used to assist their English study apart from their coursebooks, the interviewees mentioned a small range of resources they regularly utilised. The most popular was English films. Films were found to be very useful because they usually have both Chinese and English subtitles. Most students reported they would watch a film on a computer with English subtitles first and then switch to the Chinese subtitles. Such easy manipulation of digital materials was an obvious aid and attraction to students:

- *'I sometimes watch English films or documentaries ... At the beginning, I might feel it very difficult ..., but after several times, I would feel I've 'gone into' it and feel much better.'*
- *'Most film discs provide both English and Chinese subtitles which are at my own control. I feel much easier this way.'*

The second important kind of resource was audio materials, such as English songs, news, lectures, and speeches. Although Y02 students mentioned obtaining video and audio materials on CD-ROMs (e.g., film discs, music albums, or English magazines with digitalised content), the majority of both Y02 and Y03 groups preferred to obtain resources from online sources. For example, they found there were not many English-speaking radio programs accessible through the radio, and TV programs were on the other hand too restrictive on time and location, especially when most of them did not have a TV in their dormitories. However, they could access online radios and TV channels much more easily and more at their own control since a vast amount of radio and TV programs are stored online for downloads. The students were aware that there were plenty of audio/video materials on the university intranet that they could download for free. Sometimes they would surf the Internet for news or information written in English, too.

The online courseware materials from tutors of other subjects were also of help. Since most courseware materials were in English (some courses were even taught entirely in English), the students felt they were to some extent conducive for their English learning. Printed reading materials, except coursebooks, were the least attractive to the students. Many of them seldom read English books or newspapers. They found them either too difficult to understand, or too time-consuming as one would have to set aside a certain amount of time and could not do other things while reading.

The most interesting phenomenon emerged was related to the audio resources. In Y02 interviews, many interviewees mentioned using cassette tapes and their walkmans as effective devices to access audio materials. In contrast, in Y03 interviews, none of the interviewees mentioned tapes; instead, they mentioned mp3 resources and the ease of downloading audio materials from the networks and play them on their portable mp3 players wherever they went.

6.4. NCE Online Use

The questions about students' use of NCE Online revealed three important findings.

Use Frequency

Although the questionnaires have already shown that NCE Online had been apparently underused, the interviews revealed in more depth how and why it was the case. The students generally felt the design of NCE Online was good, or 'pretty'. They also appreciated that the comprehensive environment offered 'a rich source for learning materials', and 'it is convenient in a sense that you can keep studying even when back at home, plus the multi-media features give more sensory stimuli which will help us memorise more effectively'. When Y02 cohort was interviewed in 2003, a fair proportion of them reported using NCE Online occasionally, and some genuinely felt its usefulness and used it more regularly than the others.

- *'Usually after I have worked on the new words we just learned, I will go to play 'Word Games'. When I have time, I will also watch some films and listen to the songs in there.'*
- *'I use 'Word Games' very often. When I have nothing else to do, I play the English songs. Sometimes, when we need to prepare for the after-class reading passages, if I don't want to look up new words in my dictionary, I just go to NCE which gives sentence translations of the passages. Because I have a computer to myself, I use this quite a lot.'*

Nonetheless, many students tended to use NCE Online just for the sake of English tests.

- *'I've been using NCE Online very often recently because of the vocabulary test. I mainly play Word Games. I think this is a good part. I can memorise words better after playing the games.'*
- *'I'd access it when it's near exams. I would go to do some vocabulary exercises there, e.g. Word Games.'*
- *'I seldom use NCE Online. Only when it's near the exam time, when the teacher reminds us of it will I access it to do some vocabulary exercises.'*

One group even mentioned that they would start using it soon because their English teacher had said that use of NCE Online would be counted towards their final marks. Further, the Y03 interviews revealed an even more serious underuse. Most of Y03 interviewees rarely used it, and some barely knew its existence. There were some common reasons for the underuse, but there were also some differences between Y02 and Y03 cohorts which could be related to their different levels of IT familiarity.

Both cohorts felt that learning through computers was not as convenient as books, although convenience and flexibility is almost the most advocated advantages of E-learning. The participants reported that their dormitories were too noisy to study in, and the computer labs were even worse with the 'awful, dizzying' air in there. Therefore, they mostly did study in open-access classrooms where there were no computers. Since the questionnaires found that among the computer owners the vast majority had desktops only, they could not access NCE Online in their preferred study places—the open-access classrooms. The interviewees gave some very illuminating comparisons as follows:

- *'...sometimes when I'm doing self-study in a classroom and I come across something I want to look up in NCE Online, but there's no computer in there, so I can't go to NCE Online right then. By the time I get back to my dormitory, I may have forgotten it already. So it's not very convenient to use really.'*
- *'It'd be good if it can be accessed through something like a walkman. ... Computers are 'tied to' one place, so you have to stay in a certain place to access it.'*
- *'It restricts where I can study. I will have to stay in my dormitory all the time to study through NCE Online, but I don't like to stay in my dorm all the time. I find books more convenient.'*

The inconvenience was also partly because the networks seemed to be unreliable and some technical designs of the NCE Online system, such as the lengthy flash animation prior to the login window, hindered the connectivity even further.

- *'It looks very nice at first sight and you feel like you'd be using it very often, but in fact you have to switch on computer, go to that webpage, and login, it's not very convenient.'*

- *'I've tried to make it quicker to access, e.g. I've put a shortcut on my desktop, but still the animation before the login and login itself can take a while.'*
- *'The NCE Online window takes up the whole screen. Unless you get out of it first, you can't do anything else at the same time.'*
- *'... if you listen to something on a tape, you only need to press one button, but if you want to listen to materials in NCE Online, you have to switch on the computer and login which will take about 4-5 minutes.'*

An evident distinction between the two cohorts was that several from the Y02 group expressed their aversion to such a form as online learning while no Y03 interviewees had such sentiment. One of Y02 interviewees asserted she did not like this method of learning at all, while a few others suggested that they were not used to it and tended to find the traditional means more comfortable. For instance,

- *'If I had to sit at a computer for a long time to read them, my eyes would become really sore. But books are easier for eyes, and there's no restraint, I can carry it to anywhere I want to read them.'*
- *'Probably it's because we are not very used to this method because it's different from our traditional way. We prefer to mark or make notes while reading and think we can remember better by doing so, ... and also reading a screen does make eyes sore.'*
- *'I still tend not to use computers. I prefer to read magazines or listen to tapes, etc. I prefer printed materials. Computers are not good for eyes, plus as soon as I switch on a computer, I will be more tempted to do other things rather than study.'*

In contrast, Y03 students seemed to have taken ICTs for granted more intuitively in their study, although they still varied in terms of the amount of E-learning they would like to have. The main reasons for their underuse of NCE were:

1) NCE Online was almost unknown to them. Their tutors did not use it or only used it occasionally in class, and neither did they encourage their students to use it after class. The students suggested NCE Online should do some advertising to make more students aware of its existence.
2) Time pressure was a repeatedly mentioned drawback. Most students reported they had very heavy workload due to the new 4-term system. Some students even had 12 classes a day, as well as some social work commitments. As one student pointed out, 'Comparatively, the College English course does not pose as much pressure as my other courses. I'd be failing them as soon as I don't work hard enough, but English is not that obvious, so I spend a lot more time on the other courses and naturally don't have much time for using NCE Online.' Many students reckoned that to really make use of such a comprehensive learning system would be very time-consuming.
3) When NCE Online was being upgraded to a newer version in 2004, the availability of the system seemed to have become even more problematic. Most students reported that they were very quickly discouraged by the accessibility difficulties even though they (or their tutors) were very keen on using it at the beginning.

Nonetheless, the root of the problem lay more likely in learners' motivation besides the reasons listed above. Both Y02 and Y03 students felt what NCE Online offered was not attractive enough. First of all, because NCE Online was built entirely upon the coursebooks, many students felt it was too similar to the coursebooks. On the other hand, as aforementioned, students thought their paper-based textbooks were much more accessible than the online system. On the other hand, because it was too similar to the coursebooks and provided detailed explanations and translations for the texts, many students found it boring and unchallenging.

- *'I seldom use it because I think the content in NCE Online is mainly from the coursebooks. I'm not saying that the materials in the coursebooks are simple, but it has been used for so many years, the content is a bit 'dead' to me.'*
- *'I didn't like the fact that all the explanations are there.'*
- *'Personally I'm not very used to using things from textbooks. I prefer to look for materials for myself outside class. ... the content of NCE is not very attractive to me.'*

Secondly, most students pointed out the extra resources in NCE Online were not updated very often and were not interesting or entertaining enough. Especially, they did not think there were sufficient 'English For Fun' resources and the existing content was too old to be motivating. For example, one student said, 'The radio programs I listen online are updated every day. Also, newspapers are quickly updated as well. So I seldom use NCE Online.' Another student suggested, 'I think NCE Online should not try to be all-inclusive. It shouldn't just have a little bit of songs, a little of movies, etc. It must have its own specialities. Only when it has something special to offer would students want to go there.' What resources are more desirable to them has been discussed in the analysis of Q02 (2004).

Utilised Features

For those who had more or less used NCE Online, it seemed the features most of them utilised were related to vocabulary acquisition and listening. A majority of them used 'Word Games' to enhance their vocabulary learning, and they liked the functionality that all the texts in the 'NCE' module had read-aloud audio alternatives. In addition to the listening exercises, the video/audio materials in 'English For Fun' were also considered good listening practice.

- *'If we want to be lazy, we can just go to NCE Online, and it will read these passages to us, so we can improve both our reading comprehension and listening abilities at the same time.'*

- *'If I have time, I will go to NCE Online's 'Reference' which helps me memorise vocabulary. If I don't have much time, I will go to 'Listening' and then at the same time do some other work.'*

Although NCE Online looked complex and deterring at a glance, a few students in the Y03 group reported that the more they delved into the system the more they found it useful. Therefore, the system was not lacking of useful resources, but rather it lacked some initial impetus which would raise students' interest and in turn 'push' them to explore more helpful features of the system.

Online Community

Given the importance of communicative interaction in SLA, online communication is supposed to be one of the most effective means to improve speaking fluency in modern TESOL education. However, the 'Online Community' module seemed to be the least noticed feature in NCE Online. It was a platform where students could either post messages in a forum or have instant chat (text-based) with others. Most of the students had never used or heard of it, only a few had looked into it, and even fewer had contributed anything to the discussion or chat. Several Y02 students simply did not like the form of online communication:

- *'I'm not keen on this type of communication, no matter it is for English study or for other purposes. I don't like online discussion or chatting, I feel the 'flavour' has been changed in that kind of environment. I still think face-to-face talk is the most ideal.'*
- *'I prefer face-to-face communication. For online communications, you use hands to type, which doesn't give the right feel. Face-to-face communications can truly practice your oral English. ... I seldom use them [CMC tools], but I will try more.'*

In contrast, a student who had been using CMCs regularly in his daily life found both forms of communication effective in practicing English.

- *'I use online communication quite a lot, ... They both have advantages. Face-to-face communication is more direct, while online communication can become writing practice if done in English and have some other advantages too.'*

However, the most important reason for the fallowness of the online community area was its lack of purposes or contexts and thus its lack of participants. One student's comment almost summed up all the problems:

- *'I've used it and also posted messages, but I feel it is different from normal discussion forums. None of the students around me would consciously go to 'Online Community' to read and post posts when they have free time. ... In there, usually you post a message, and after a week, someone else may log in and respond to your*

message. Therefore, the exchange speed is really very slow. So it's completely meaningless. This idea of online community is good, but there are too few people using it, and it doesn't have a very good uniting power. ... It doesn't serve any purpose at all.'

When asked what would make them want to make use of 'Online Community', the interviewees made several suggestions. First of all, it has to create some purposes—topics about which people want to discuss. It was pointed out that there were already some popular online English discussion forums that students could access easily. One student suggested that NCE Online could create several forums with different themes so that students could choose to participate in the topics of their interest. Secondly, since it is a place for practising English, participants of higher proficiency are needed to motivate the less able learners to join. As one student suggested, 'If people there were all of high English level, I would very much like to go there.' Thirdly, tutors' participation and guidance would be very motivating for students. It was speculated that with tutors' guidance, more students would want to join chatrooms or forums, and thus create a lively environment which would in turn attract even more participants. One student commented, 'I think there must be a teacher who can guide discussions. In that case, I would love to participate.'

The majority of the interviewees agreed that it was a good idea to have an online communication platform to practice English either synchronously or asynchronously.

- *'We need such a place. You can practice speaking with people you don't know when you want to practice but people around you don't have time.'*

Some students felt NCE Online should be characterized by voice chatting tools since there were already many other text-based CMC sites on campus which were more popular than NCE Online's 'Online Community'. If 'Online Community' became more popular through its uniqueness, many students felt it could be a very helpful tool and would like to participate more.

- *'It's good to have a platform, especially a big and popular one. On the one hand, it can allow a lot of people to contribute resources for others to share. On the other hand, it can create an atmosphere. There are usually very few people around you speaking English, but if you get online and realise there are so many people trying to learn and speak English, you'd feel a kind of pressure.'*

6.5. Usefulness of E-learning

Regardless of the disciplines they majored in, all the interviewees indicated high confidence in using computers. Although they admitted they were only familiar with some applications very superficially and lacked knowledge about hardware, they were all affirmative of learning new skills quickly and solving technical problems for themselves. They confirmed that they had become more IT-literate after a year's frequent use, however, study use only had very limited contribution to this competence increase. Most of them did not think they tried to use computers more for their study as they became more skilled. A comment with great insight was:

- *'The improved computing skills are not necessarily applied to studies. It largely depends on the curriculum. Those more advanced courses may require more computer use, but right now our study is still very passive. ... We mainly just follow teachers' instruction during the first and second years of study, so computers are only complementary. But when we reach a higher level, we may have to study more independently [through computers].'*

Nor did the students find computers more and more useful in their study. It seemed the usefulness of computers and their increased use in students' daily life did not have a halo effect on their study use. Many of them said that they had thought they could not work very well without computers originally, but after they got computers they did not feel they were of too much use in their studies. Apart from accessing tutors' courseware, the most useful function of a computer was said to be searching for ready answers or solutions to their course assignments or exam topics which had been contributed by their peers. In the end, they generally felt books were still more dominant a medium than computers in their studies:

- *'[Computers are] somewhat helpful, but can't really tell how much. However, we won't feel very comfortable without them either. Because we've been reading from books since we were children, we are still not used to reading from the screen. Maybe we'll get more used to doing that in future.'*

6.6. Usefulness of CALL

While acknowledging computers could be very useful in some aspects, most students thought they only brought moderate benefits to their English study. The students were aware that there were abundant English learning resources made available by ICT, such as software that helps memorise vocabulary, enthusiastic English learners' discussion forums, and downloadable films. Two interviewees mentioned they felt considerable improvement after they had been watching the popular sitcom 'Friends' regularly. However, more students

realized that to gain any genuine benefits was still largely dependent on individual differences, such as learning preferences and effort put into English study. Here are two representative perceptions on the usefulness of CALL:

- *'Not much help. It depends on individual study habits. I don't like reading anything on the screen. I prefer to read or search for printed materials.'*
- *'It is of some help, but not too much. Computers and the web offer a lot of resources, which would have been available without such technologies.'*

Favourite English Learning Mode

Y03 interviewees were asked to choose a favourite among five learning modes: classroom learning only, traditional learning with CALL in class, traditional learning with CALL after class, learning via CALL with online tutor instructions, and learning via CALL without a tutor. Most students chose either the second or the third as their favourite learning mode. One student preferred to self-study with CALL completely, explaining:

- *'Right now a teacher is facing more than 40 students in a class. You can hardly learn anything in class. ... Classroom learning would be much better if the teacher was only dealing with 5 or 6 students in class. If that was the case, then I would prefer to go to class. ... There are plenty of resources on the Web. As long as you make the effort, you can self-study very well.'*

There were a similar number of students who preferred either the second or the third mode. Both types of students valued classroom learning and felt it was indispensable in their study. However, the students who favoured the CALL and in-class tutoring mode typically commented:

- *'If I'm [learning] on my own, I probably won't go and use the CALL system. It's much better with the teacher's leading.'*
- *'The combination of the two in class would be more effective because the online CALL system is a good auxiliary with its audio and visual presentations. If left to study with it after class on my own, I might find it difficult.'*
- *'Self-study online is a kind of pressure. ... I prefer classroom because it's been like that all the time. In class if you have a question, you can get an answer from the teacher face-to-face very quickly. It wouldn't be as smooth online.'*
- *'With CALL in class, the lesson becomes more interesting. ... If I had to study on my own, it would take me a very long time to go through one unit, so it's better to have both in class.'*
- *'It's more efficient to communicate with the teacher in class than learning on my own. Online learning can only be an auxiliary.'*

The reasons they offered highlighted some important learning characteristic of Chinese learners which was also reflected in the learning style analysis. The quotes here manifested an apparent concern about correctness and a strong reliance on teachers and traditional ways

of learning. In contrast, the students who favoured after-class CALL indicated something different:

- *'After-class CALL learning is a lot more flexible. It is more interactive in class, but with self-study, I can have my own understandings and a variety of forms to learn.'*
- *'I like to look for things I'm still not good at on the Web. I will study them as soon as I come across them. In that way, I won't need to spend too much time on them if the teacher mentions them in class.'*
- *'Teacher's guidance is essential. ... She may show you some better learning strategies, which you may never realize when you study on your own. ... As for listening and speaking, it is very good to practice them after class.'*
- *'What is learned in class is very limited. Teacher only mainly covers the texts (and grammar), the rest is still all dependent on ourselves'*

These quotes showed that although the students who preferred the after-class CALL mode also showed reliance on teachers' instructions to a certain degree, they were much more self-directed in choosing learning content and strategies. However, the interviews revealed that there were slightly a few more teacher-dependent students than self-reliant ones. Those who were more autonomous apparently preferred the classroom to be where they could interact with the teacher and other students and thought they could learn equally well through CALL after class. There also seemed to be an agreement that listening and speaking were the two aspects the autonomous learners would like to enhance through CALL on their own. For some students, NCE Online changed their views on E-learning to certain extent. One student said that he had been very much against teachers using courseware in class, but NCE Online made him realize that it was a good self-study tool and he could learn by himself just as well. Another student also agreed that NCE Online improved his learning efficiency and started to hold positive attitude towards E-learning because of it. On the other hand, the more dependent students would prefer every form of learning to be done in class where they felt reassured that they could get teachers' instructions and feedback instantly and could be 'prodded' to learn with the teacher and classmates around them. Since an online environment such as NCE Online could make some parts of their learning more interesting or effective, they would rather have it used in class than studying with it in their own time.

Peer Communication vs. Tutor Communication

Due to the intriguing finding from the questionnaires that students preferred to have CMC with their tutors more than with their peers, questions were asked in Y03 interviews to probe the reasons behind such a difference.

The students' responses confirmed a general preference of communicating with teachers through CMC tools, e.g., email. The interviews revealed that the form of communication

students chose was mainly determined by the sense of social identity. Students felt equal among themselves, therefore, they 'were not afraid of anything' and would rather have face-to-face talk. Whereas, teachers were authorities that should be respected, so students tried to avoid 'bothering' teachers in person. Fortunately, as one student observed, 'The best thing about network is it creates a sense of equality. You only see an ID on the screen and wouldn't immediately attach it to an image of a teacher, so you'd feel more equal to communicate with him/her.' In addition, the interviewees reported that their teachers were often unavailable in person, so email was the most popular method of communicating with their tutors or arranging a face-to-face meeting. Asynchronous online communication also allowed students sufficient time to 'think over what needs to be said before sending it away', thus reduce risks of 'disturbing' or 'offending' the teacher unnecessarily.

Collaborative Work

The questionnaires showed students were willing to do groupwork in class but would rather study alone outside class. Y03 interviews tried to find out more about students' inclination for collaborative work.

It was indicated that the students were not particularly enthusiastic about groupwork. Some of them hardly had any collaborative experience in their English learning. They recognised the fact that they could learn from each other in collaborative work, but 'it is not used very often in reality and it doesn't seem to be that important in English study'. When doing groupwork in class, some students mentioned that their personalities played a crucial role. Often students in a group were all very introverted and quiet, and 'it is not very interesting when everyone just keeps silent'. It was even more difficult to organise collaborative activities outside the classroom. However, it seemed collaborations could become more acceptable and beneficial when the types of activities were appropriate and after a certain amount of such experience. For instance, one student's reflection was very illustrative:

- *'Some groups in my class used to be very silent. ... [However,] groupwork can change its form and improve. Especially after some acting activities, we worked together much better. In the past no one spoke whenever the teacher asked us to have discussions. The situation changed after the acting activities because everyone had to rehearse and speak out. As soon as we got familiar with one another, we all started to talk eagerly. It felt really good.'*

Therefore, when appropriate activities were organised successfully, it seemed that even the passive, introverted students would enjoy participating in collaborative work.

Part II: Discussion

6.7. English Learning Experience

English Skills

The students' English learning history varied from 7 to 19 years. Most of them started the formal learning from secondary school (at age 11 or 12), while some had some informal learning from kindergarten or even earlier. In the most part of their formal learning, reading had always been the most trained skill. Therefore, few students felt they had problems with reading. However, many reported that, including those few who did regard reading as the most difficult area, reading was often difficult in exams not because they did not understand the passages but because they often could not understand the comprehension questions asked. On the contrary, speaking was normally the most neglected area in their previous education. Little wonder that it was considered the most difficult skill by many students. A sharp contrast existed between the students who had had a certain amount of oral English practice prior to university and those who had not. The former confidently rated speaking as one of the easiest aspect while the latter were most likely to rate it as the most difficult.

A number of students also regarded grammar and vocabulary as difficult. However, the interviewees' explanations revealed that they were difficult not because they were difficult to understand but because they were difficult to be used appropriately in real contexts. After on average 7 years' English study, most of them had grasped a sufficient amount of grammar and vocabulary knowledge. However, they started to find, in the large amount of authentic reading required by the College English course, that there were a much greater number of vocabulary they had to acquire and even the use of the grammar and vocabulary knowledge they had learned in the past had become too flexible in real-life situations to manipulate well. For example, one interviewee mentioned that s/he had no problem using the vocabulary in daily conversations but felt difficult when it came to writing something formal. Nonetheless, grammar did not seem to pose a serious problem in their learning except in English exams.

When asked which skills they would like to improve most, listening and speaking appeared on the top of the list. However, they seemed to serve different purposes in English learning, as students claimed that for exams they wanted to improve listening most while for real life

it would be speaking. They were deeply concerned that there was not a conducive environment for them to be immersed in English use. Nobody around them spoke English, and they felt embarrassed to start speaking English. Most of them could not 'open their mouths' and they wished the teachers could create more opportunities for them to speak English more naturally.

Learning Resources

Apart from their textbooks, the most frequently mentioned learning resource was English films. The students were very quick to make use of the subtitle feature of VCDs and DVDs. English films are not only entertaining, but also a helpful provision of vivid, authentic and contextualised use of linguistic and sociolinguistic elements. In addition, the technology nowadays enables verbatim subtitles in many languages for films on VCDs or DVDs. A common practice among the students was: they would usually watch films with the English subtitles first and then watch them again with the Chinese subtitles. Audio materials were very popular as well as video resources. However, because the students did not have TV sets or VCD/DVD players in their dormitories, they mostly used their computers for accessing these resources. Although CD-ROMs/DVD-ROMs were sometimes used too, they preferred to obtain audio and video resources from online sources as they were less restrictive with access time and place than radio or TV programs. They reported there was a massive reservoir of recorded radio and TV programs on the University's FTP site which they could access and select anytime they wished.

There was an interesting comparison of the media they used to access the audio materials between Y02 and Y03 interviewees. Many Y02 interviewees mentioned using cassette tapes and walkmans as their portable devices for audio materials, however, none of Y03 interviewees mentioned tapes, but they used mp3 resources which they downloaded from the networks with ease and played them on their portable mp3 players. This seemed to be a very clear case where the availability of the progressive technologies is changing the media and the pace with which learners acquire foreign languages. If Krashen's Input Hypothesis is true about input being the sole cause of language acquisition, then technologies are showing more and more potentials of providing ubiquitous access to input which learners can accumulate to a certain amount till one day they start to produce utterances as a result of acquisition. The students also mentioned that the online courseware materials from the other courses were also helpful. Most of them were written in English, and some courses were

even taught in English. Therefore, they became a very good direct source of the language input besides the English course.

In general, paper-based materials, as an extra learning resource, seemed to be the least attractive to the students. However, as Q03 has shown, printed materials were still the most frequently used medium in students' English study. Nevertheless, the most important reason the students chose to use books most time was their portability and accessibility, which did not mean it was necessarily their favourite medium. Quality-wise, paper-based resources did not seem to be the learners' first choice.

Learning Styles

The questionnaires revealed the following two outstanding learning characteristics of these Chinese learners, and the interviews offered more details about them.

1) Collaborative Work

The interviews confirmed that the students were not particularly keen on collaborative work. It may have much to do with their personalities, according to some students' reflection on their groupwork experiences. They often found each other very reserved in groupwork, all sitting quietly without any utterances. However, a more crucial reason for their reticence may lie in their lack of collaborative experience in their education. Some interviewees remembered that they hardly had any collaborative experiences in their English learning so far. Even though they could identify with the value of collaborative learning, it did not seem to have been an important component of their study in reality. Nevertheless, there was also evidence that, after some interviewees received positive collaborative experiences due to their tutors' appropriate organisation and intervention, they enjoyed and benefited from collaborative learning despite their personality differences. This suggested that collaborative work could become a more desirable form of learning for Chinese students if teachers designed appropriate types of activities and offered sufficient guidance. After an accumulation of positive experiences, learners might fully realise the advantages of working with peers rather than alone.

2) Peer Communication & Tutor Communication

When it came to online communication, the students showed distinct preference for having CMC with tutors rather than with peers. The interviews probed the reasons behind this contrast. It was found that the students liked to have face-to-face communications with their peers because they felt equal among themselves. On the other hand, they looked upon their

teachers as authorities who should be much respected. Therefore, it was not polite to 'bother' their teachers in person. Luckily, the students felt that CMC tools created a sense of equality in that the teacher's ID (often in numbers or avatar names) on the screen did not immediately bring up the authoritative image. In addition, asynchronous communication also would allow them enough time to think over what they wanted to say and thus reduce the risks of 'disturbing' or 'offending' the teacher. Also, the reality was their teachers were often unavailable in person, either. Therefore, online communication seemed to be the most practical and comfortable method to keep in contact with the teachers.

Attitudes towards English Learning

The questionnaires found the students' interest in English learning had been declining over the time of their study. The interviews confirmed this and revealed students' own views on their interest loss. Many students claimed that they were taking the English course purely because of the university exams and the CET 4/6 test. However, the loss of interest was not rooted in all aspects of English learning. The interviewees reflected that grammar and vocabulary were the areas they became uninterested in while interest in speaking and listening had generally increased. One typical comment from them was that the English teaching put too much emphasis on grammar learning in every stage of their formal education and in exams so that they had become less and less motivated. It seemed that the overemphasis on acquisition of structural knowledge of the language dampened the students' interest in learning it whereas they were still keen on enhance skills for *using* the language in contexts that were relevant and meaningful to them.

6.8. General Computing Experience

The interviews confirmed several findings from the questionnaires. Firstly, the interviewees mentioned that most of them did not own computers in the first year but they did in the second year. Y03 interviewees reported a higher rate of computer ownership than Y02 interviewees when they were at the same stage of their study. However, the interviewees also emphasized that their peers who did not own computers usually did not feel a shortage of access to computers because they could share their roommates' PCs very conveniently. The interviewees also explained 5 situations where a small proportion of the students did not intend to purchase their own computers:

- They did not feel the *need* to have computers. Some majors did not call for heavy use of computers, e.g., medicine or human resources.

- The students who did not have computers could use their peers' PCs easily when necessary.
- They did not *want* to buy computers because they were afraid of getting into habits of spending too much time on computers on activities other than learning, e.g., gaming.
- Some parents refused to buy their children computers also for the fear that they would spend too much time using them for non-study-related activities.
- A very small number of students had financial difficulties.

Although the interviewees all admitted that owning computers privately brought them much more convenience, they did not think those who did not own computers were at disadvantage at all. In fact, they might have been able to spend less time playing on computers and more time on study.

When both groups of students reported high frequency of computer use, the Y02 group mostly mentioned using computers to access courseware and extra learning materials while the Y03 group did not think they used computers mainly for study. Y03 interviewees admitted that most time they used computers for recreational purposes, but they would use them more for study when it was exam time. A very important reason for their low study use was that they mostly had desktop PCs in their dormitories, but they did not like to study in their dormitory rooms. Most of them found their dormitory rooms to be too noisy as normally 4 or more students shared one room, and the computer labs were said to be inconvenient to access and unpleasant to stay in for a long time. Therefore, most of them chose to study in the open-access classrooms where there were no computers. Another reason was the cost of using the Internet (see the previous discussion). Although from 2004 the university has stopped charging for the intranet, students still have to purchase cards for using the Internet. Therefore, the costs and the network configurations for the Internet had deterred more extensive use of computers for study purposes.

The interviewees confirmed that they felt they had become more competent with computers after one year's frequent use, and they were all very confident in learning new computing skills quickly and solving technical problems for themselves. However, they were aware that they were only very familiar with some common applications very superficially and lacked more advanced knowledge about both software and hardware. Most of them did not think their increased IT literacy had much to do with their study use of computers, and neither did they try to use ICT more frequently for study due to their bettered IT skills. It was pointed out that the frequency of computer use for study purposes was largely dependent

on their subjects and curricula, e.g., the human resources majors did not need to use computers very much whilst more advanced courses often required more computer use.

6.9. NCE Online Experience

Despite a general positive opinion about NCE Online, most interviewees had not made much use of it. Y02 interviewees reported using it occasionally, whereas Y03 interviewees hardly used it and some were even unaware of its existence. Many of them said they accessed it just for the sake of English exams. Some students were going to use it more often because their tutor had decided that their use of NCE Online would be included in the final assessment. Corresponding to the questionnaires, the main reasons the interviewees gave for the underuse of the system was:

1) The restriction of location. Since most of them had self-study in open-access classrooms, they could not access NCE Online whenever they wanted to study English through it. Therefore, in general they felt their textbooks were more accessible.
2) The availability of the system. The unreliable network connection and the slow speed of the network made NCE Online very difficult to access, which had discouraged most of the users.
3) Unsuitable design features of the system. Some features, such as the login process and the navigation buttons, were said to be not very user-friendly.
4) Time pressure. Again, the interviewees general felt that to study through NCE Online was time-consuming, and they would rather spare more time for other subjects of priority.
5) Lack of motivation. This was probably the fundamental reason. Many students felt the system was uninteresting because it was too similar to their textbooks while on the other hand their paper-based textbooks were much more accessible. They were bored easily because they did not feel intellectually challenged. In addition, the extra materials besides the textbook content were not updated very often and not seen as entertaining enough. Of course, their diminishing interest in English learning in general was also a contributing factor.

There was an interesting distinction between Y02 and Y03 interviewees in terms of their acceptance of this form of learning. Several of the Y02 group expressed their aversion to online learning while no Y03 interviewees indicated such dislike. To those who were not used to E-learning, two of the major concerns were that they could not mark or make notes as they normally did with their textbooks and reading on the screens caused sore eyes. On the contrary, Y03 interviewees seemed to take ICT use in their studies for granted.

Nevertheless, some students genuinely felt NCE Online was useful and made regular use of it. In accordance with the questionnaire data, they reported that the more they got familiar

with the system's functionalities, the more useful they considered it to be. What they utilised most in NCE Online were resources for vocabulary acquisition and listening. Both the students and teachers' interviews revealed that 'Word Games' received most attention from the students and the 'English For Fun' resources were considered useful but far less than sufficient and up-to-date enough.

What might need careful reconsideration was the 'Online Community' module in NCE Online. Most students never used it or heard of it. Several Y02 students did not like the form of online communication at all. While learners' attitudes towards text-based online communication played a crucial role in how much it would be utilised, the more prevalent reason for the lack of interest was that it lacked meaningful purposes and contexts for learners to participate in. However, Q02 (2004) showed that the students were in great need of communicative activities. Most of them were aware that CMC tools were capable of providing more communicative opportunities. Therefore, the interviewees made several suggestions as to how to make NCE Online's communicative facilities more attractive and effective:

- It must create meaningful themes which students were interested in discussing about.
- It should consist of enough participants of high proficiency level to motivate the less able learners.
- The students would be more likely to participate if there was teachers' participation and guidance.
- There were already some popular online English discussion forums that the students accessed from time to time, so NCE Online should make itself unique from those forums by incorporating voice chatting tools.

Overall, the students were very positive of having an online English learning environment such as NCE Online. Similar to other Asian learners (e.g., Holmes 1998), many of these students were unfamiliar with learning English with computer at first, but later enjoyed the experience. For some students, the use of NCE Online even changed their attitudes towards E-learning materials from other subjects. However, it had not catered for their expectations and interests very well. Therefore, they would not be motivated to use it as an integral part of the study unless it became compulsory or more unique in ways of enhancing their learning and more relevant to both their personal life and learning styles.

6.10. Usefulness of E-learning

Although the interviewees reported frequent use and very affirmative views on the usefulness of the computer, it did not bring a halo effect on computer use for study. Their perceptions of the usefulness of E-learning did not become more positive as they became more IT literate. In fact, many said that they had imagined they could not work very well without computers at first, but after they obtained computers they did not find too much use of them in their studies. It seemed that most of the E-learning materials provided to them—tutors' courseware—were not designed with well-informed pedagogical considerations specific to each subject, but rather produced just for the sake of using technologies. That was why they were mostly in the form of stand-alone e-lecture-notes or e-presentations. Little wonder that students were bored easily when they found the courseware of almost all the other courses were in static webpages. The only two functions of a computer in their studies seemed to be: a) to access tutors' online courseware; b) to search for answers or solutions to their course assignments or exam questions which were contributed by their peers. Therefore, the students generally felt a very limited amount of advantage of E-learning over their traditional learning methods. On the contrary, with the hardware and networking technologies available to them at that time, E-learning demonstrated considerable less mobility than the traditional media, such as books and tapes. Not surprisingly, after one year's E-learning experience, the students' evaluation of E-learning helpfulness became less positive (as also shown in the questionnaire data).

6.11. Usefulness of CALL for English Learning

As with E-learning in general, the interviewees revealed a disillusioned view on the usefulness of CALL as well. After the CALL experience in their College English study, they concluded that computers provided very moderate benefits for their language acquisition. There was a notion that they still believed in the potential helpfulness of CALL that good designs may generate. For instance, they were still very positive about the advantages of computers and networks as an immense reservoir of authentic English materials, and acknowledged that there was some helpful software in the market that did facilitate certain aspects of their learning. However, they had not experienced a CALL environment that integrated the piecemeal beneficial designs into one unified system which was closely related to *their* English learning context and enhanced their learning considerably. Therefore, they were not clear as to what else CALL could do for them apart from what they had experienced, and were probably disappointed from their original expectations. More

students also realised that the genuine benefits of CALL would actually depend on their individual learning preferences and the effort they make for English study in general.

Since most students believed that CALL should be an indispensable component of their English study, how much of CALL would they like to have together with their more traditional classroom learning? The interviews revealed that the majority of them would still prefer to have classroom learning most time, and many feared that they would not be able to learn if they were left to study through CALL without a teacher. However, there was an evident distinction between the more dependent students and the more self-directed ones in their choice of a favourite English learning mode. The more dependent students (the majority in the population) preferred CALL to be used in the classroom where they felt reassured with teachers' instructions and feedback and they could have constant 'prodding' from their teachers and peer students. In contrast, the more independent students were much happier to have more time to learn through CALL after class. It was mentioned that one could hardly learn much in class where the teacher typically had to deal with more than 40 students. The more autonomous learners were confident in learning equally well with after-class CALL and viewed the classroom as somewhere they could have more communicative interactions with their teachers and classmates. To these students, CALL was more flexible and individualised to suit their own learning styles and processes. In fact, the use of NCE Online even changed some students' perceptions about E-learning in general. Some interviewees mentioned that they had rather negative feelings about teachers using courseware initially, but NCE Online made them realize they were capable of learning on their own through E-learning and it also improved their learning efficiency. On the whole, as was also shown in the questionnaire analyses, more students started to expect to have a larger portion of E-learning in their English study as their CALL experiences improved.

Chapter 7 Teacher Data Analysis

Teacher Questionnaire & Interviews

Part I: Teacher Questionnaire

There were 83 teachers in total who were teaching College English at the time of this investigation. The questionnaire was handed out to the teachers on several occasions when the teachers were having their lunch breaks in the staff rooms.

7.1. Participants' Background

Approximately half of the 51 participants were teaching the first year students and half teaching the second year. Most teachers were in charge of 2~4 classes of students of one proficiency level (from the lowest Band 1 to the highest Band 6), but a few teachers taught students at different levels, e.g., one class of Band 2, another class of Band 3). The majority was teaching Band 1, 2, and 3, and only a few were teaching Band 4 and above.

As shown in the table below, the vast majority of the subjects were female (84.3%) and under 40 years old (90.2%).

Table 43: Teachers' Demographic Statistics

Gender	Frequency	Percent (%)	Age	Frequency	Percent (%)
Missing	1	2.0	**20-30**	19	37.3
Female	43	84.3	**30-40**	27	52.9
Male	7	13.7	**40-50**	5	9.8
Total	51	100.0	**Total**	51	100.0

The teachers were divided into two teaching teams: one teaching the first year students and the other the second year students. They were then allocated to different teaching groups in charge of different levels (from Band 1 to 6).

7.2. Computing Experience

Hardware & Software Resources

Questions were asked to find out whether the teachers had the necessary hardware and software resources at home if they wanted to use NCE Online. It was found that all the teachers except one had either desktops (66.7%) or laptops (7.8%) or even both (23.5%). All the computer owners reported having Windows systems on their computers. The systems on

the teachers' desktop computers were still mainly Windows 98 or 2000 (17 each) in 2003. Only 13 teachers had Windows XP installed on their desktops. In contrast, the teachers' laptops had much more up-to-date operating systems. Laptops with Windows XP (66.7%) had distinctively outnumbered Windows 98 or 2000. Judging from their overall computer experience (will be presented later), this suggested that the laptops were acquired very recently. This was reflected in their use of storage devices as well (as shown in Figure 19).

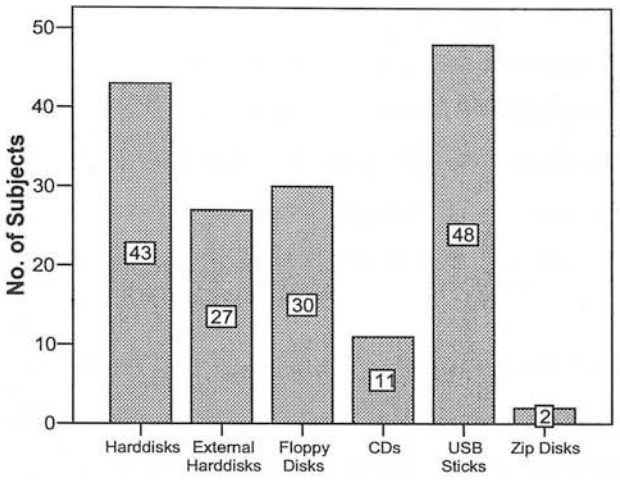

Figure 19: Storage Devices

Apart from saving files in hard disks, many more people were using USB pen drives than any other devices. In fact, almost half of the teachers (N=21) had not used floppy disks which had been a popular storage device for some time in the IT world. In addition, a considerable number of the teachers (N=27) were using external hard disks. Considering both USB drives and external hard disks were fairly recent technologies, such results indicated that there seemed to be a missing stratum in the teachers' computer experiences. It seemed many of them had started using computers recently and had never used floppy disks but gone into the USB stage straight away. Also because of the apparent flexibility and rewritability, USB sticks were much more popular with them than writable CDs. Since external hard disks and USB sticks had appeared when the majority of the teachers started to use computers, zip disks were almost unknown to these teachers.

Network connection and multi-media players were essential for the proper use of NCE Online. The vast majority of the teachers had access to networks, with about two thirds having internet access only and slightly less than one third of them having both the university intranet and the Internet. As the original research only intended to collect most general information about the teachers as complementary data to the students' data, no question was asked as to how the teachers connected to networks. However, casual talks and

the interviews with some teachers revealed that many of them were still using dial-up modems to connect to networks at that time. This partly affected access to NCE Online in general.

Computer Uses

The majority of teachers used computers daily (76.5%). It was clear that 50%-100% of all computer use time was dominantly used for teaching purposes. 39.6% of them also used PCs fairly often for personal professional development, such as academic matters or research. However, computers were used much less for recreational purposes: more than half of them (53.1%) spent less than 30% of their computer using time on recreation. It may indicate that most teachers purchased and viewed the computer as a tool for their professional development, rather than an integral part of their life in many aspects.

As for teachers' use of network in particular, Table 44 showed 51% of them accessed networks for 10 or more than 10 hours a week, and Figure 20 showed that they mainly used networks for emails and surfing for information. Hardly anyone used networks for shopping or personal businesses such as banking, and gaming was not very popular either.

Table 44: Weekly Network Use Time

	Frequency	Percent (%)
1-2 hours	8	15.7
3-4 hours	2	3.9
5-6 hours	5	9.8
7-9 hours	9	17.6
>=10 hours	26	51.0

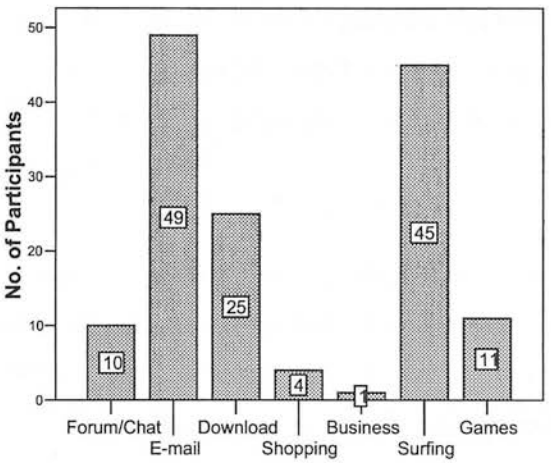

Figure 20: Network Use (Teacher)

However, the fact that only 10 of them used CMC tools such as forums or chatrooms (see Figure 20) may have particular implications. NCE Online was an environment that attempted to create a learning community for students and teachers. If the teachers were not familiar or interested in CMC tools, they could not be expected to communicate with their students often through such tools, let alone professional discussions or exchanges among teachers.

ICT Skills

In order for teachers to make full use of E-learning, their ICT skills are a very critical factor. These teachers' proficiency with both hardware and software was investigated in the questionnaire. The teachers were first asked how confident they were in installing hardware and software in a computer. They could choose between 'I can install it by myself', 'I'll need some help', and 'I'll ask other people to install it for me'.

Table 45: Installation Skills Frequency Table

Installation / Ability	Operating System (%)	Software (%)	Printer (%)	Scanner (%)	Computer Parts (%)
Other People	52.2	24.4	34.1	46.2	86.8
Some Help	21.7	13.3	25.0	23.1	10.5
Self	26.1	62.2	40.9	30.8	2.6

Among installation of operating systems, software, printer, scanner and computer parts, the teachers were most confident in software packages which 62.2% of them could install by themselves. The majority of them also believed they could manage to install computer peripherals such as printers and scanners either by themselves (40.9% and 30.8%) or with some external help (25% and 23.1% respectively). However, more than half of them (52.2%) would have to ask other people to build operating systems, and most teachers (86.8%) would rather other people install hardware parts inside computers for them. This indicated that the teachers would not have too much difficulty if they should need to install some new software packages, but would need or completely rely on some professional technical help with hardware installation and the operating system itself.

How competent were the teachers in using computer software to help them fulfil tasks in their daily life and teaching? 12 applications were identified as skills they may need for classroom teaching and effective use of NCE Online: 'Word', 'Powerpoint', 'Winzip', 'Excel', 'PDF Reader', 'Anti-virus software', 'Time scheduling' (e.g., Microsoft Outlook), 'Scanning', 'Image editing', 'Audio file editing', 'Webpage editing', 'File format changing'. The teachers could rate their proficiency for these 12 applications from 1.0 (Never heard of or used it), 2.0 (Not proficient), 3.0 (Medium), 4.0 (Proficient) to 5.0 (Very proficient).

The teachers reported to be most proficient in word processing package Microsoft Word (Mean=4.45) and least familiar with audio file editing (Mean=1.63). Word was the only application whose minimum value was beyond 1.0, which meant every teacher had used Word. In contrast, 'audio file editing' did not have the highest value 5.0, which meant no teacher felt very confident in using software for this task. As Word and Powerpoint were the

software every teaching group used to design lesson plans, it was no surprise that the teachers were very familiar with these two software packages. Only 4 applications—PDF Reader, Anti-virus software, Powerpoint and Word—scored a proficiency level higher than the average 3.0. Furthermore, except 'Anti-virus software', 'Powerpoint' and 'Word', all the rest had positive skewness values which indicated a tendency towards the lower end of the proficiency scale. Some applications that would be beneficial for daily life as well as academic endeavours, such as scanning, file format change and time scheduling software, did not seem to be utilised very much. Even such common applications as Winzip and PDF Reader only just reached a mean of 3.0. In fact, the frequency distribution of PDF Reader had a bimodal shape which indicated a polarized divide between teachers who were very familiar with PDF Reader and those who hardly used it.

On the whole, the teachers' self-assessment indicated a generally low computer competence in many areas. In addition, it seemed, the more CALL-relevant an application was (e.g., audio file editing, webpage editing), the less familiar the teachers were with them.

Using the same 5-point Likert Scale as above, more questions were asked to let the teachers rate their competence for six specific network uses (as shown in the table below) which would be essential for using NCE Online or other online learning systems. The statistics revealed the following features of the teachers' familiarity with network applications:

Table 46: Network Use Skillfulness

Network Uses	Mean
Asynchronous Communication	2.38
FTP Transfer	2.40
Synchronous Communication	2.74
Email (Outlook Express)	3.60
Web Browsing	4.20
Internet Searching	4.39

1) Information Retrieving

The majority of the teachers were very confident in web browsing (Mean=4.2) and searching for resources and information (Mean=4.39), however, they were distinctively short of knowledge about FTP transfer (Mean=2.4) which was frequently mentioned by the students in the interviews as their method of sharing and retrieving resources.

2) Communication

The teachers were reasonably familiar with Outlook Express (Mean=3.60) which is a major email management program. Moreover, histogram Figure 21 showed that the teachers were

either among the first one fifth (value 1.0) who had never used it, or those who had used it and had a fair knowledge because the value 2.0 (referring to 'used but not proficient') does not have a bar in the histogram.

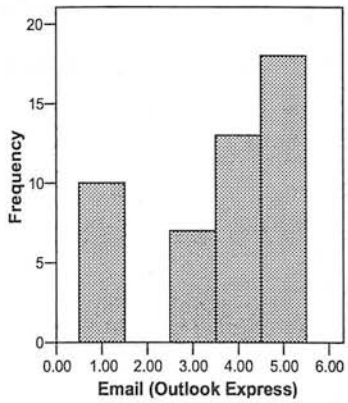

Figure 21: Email

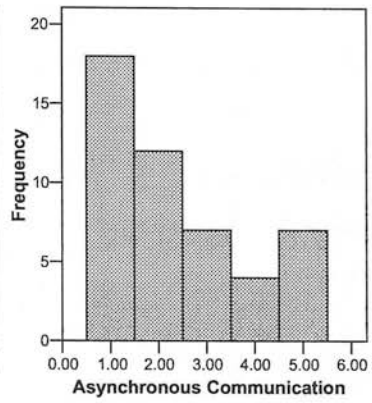

Figure 22: Asynchronous CMC

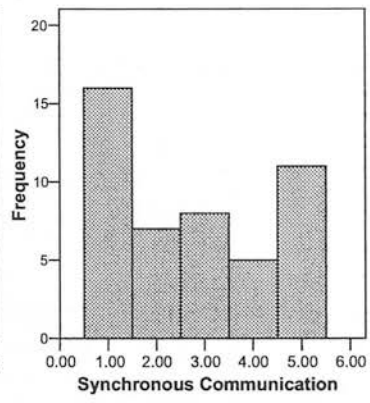

Figure 23: Synchronous CMC

Also clearly shown in Figure 22 and 23 was a lack of familiarity with online asynchronous or synchronous communication tools (Mean=2.38 and 2.74 respectively). Figure 22 showed the distribution was distinctly skewed to the left, which meant the majority of the teachers were not very familiar with asynchronous CMC tools. Figure 23 displayed a U-shaped distribution with two obvious extremes, indicating many teachers either never used synchronous CMC tools (e.g., chatrooms, instant messengers) or had become very familiar with them. As there were evidently more teachers within the value 1.0 bar than the 5.0 bar in Figure 23, the overall mean value of synchronous communication was still among the lowest. Since almost all the teachers had access to networks, this may mean either a majority of these teachers had never heard of such tools or showed no interest in using them. The latter was more likely because it corresponded with other findings in the next section.

7.3. Use of NCE Online

After the analysis of the availability of computer technologies and the teachers' computing proficiency, how they used NCE Online and what they thought of it were then examined.

How Much Was It Used?

Table 47 showed the frequency of the teachers' opinions about how necessary NCE Online was for College English. Although more than half (56.3%) of the teachers acknowledged that it was very necessary, the number of the teachers who regarded it as 'better than none' (35.4%) or who were not bothered (8.3%) was not negligible either. This revealed that almost half of the teachers (43.7%) did not hold a very enthusiastic attitude towards this

online learning environment. This was in turn reflected in their use frequency of NCE Online. Shown in Table 47, teachers who had never used NCE Online (13.7%) actually outnumbered those who used it very often (11.8%). The vast majority either used it sometimes or several times in total only. Such a low rate of utilisation called for a more detailed investigation on the reasons behind it. They will be presented in the analysis of teacher interviews later in the chapter.

Table 47: NCE Online Use

Necessity	Percent (%)	Frequency	Percent (%)
Not Bothered	8.3	Never	13.7
Better Than None	35.4	Several Times	29.4
Very Necessary	56.3	Sometimes	39.2
		Very Often	11.8
		Every Unit	5.9

How Helpful Was It?

As aforementioned in students data, there were four main modules in NCE Online for teachers' use: 'NCE', 'English For Fun', 'Online Community', 'For Teachers' (platform for teachers to manage students' profiles and exchange with students or colleagues). The teachers were asked to rate the helpfulness of these four modules on a 5-point Likert scale with 1.0 being the lowest rating and 5.0 the highest.

Table 48: NCE Online Helpfulness

	NCE	English For Fun	Online Community	For Teachers
Mean	3.07	3.39	2.28	2.58
Median	3.00	3.00	2.00	2.00

The teachers' responses to the four modules seemed to be very different. For 'NCE' and 'English For Fun', they were generally positive (Mean=3.07 and 3.39 respectively, medians at 3.0). In contrast, 'For Teachers' was not seen as very helpful (Mean=2.58; Median=2.0), and 'Online Community' is even less satisfactory (Mean=2.28, Median=2.0). Overall, the teachers' ratings of the helpfulness of NCE Online were not high. This was found to be positively correlated to the low use frequency of the system (r=.41).

7.4. Desirable Features for NCE Online

Nine resources and functions which could be provided by an online system such as NCE Online were listed for the teachers to choose as their most desirable features: enabling lesson plan sharing, providing extra teaching resources, managing students efficiently, giving

students prompt feedback, organising group learning activities, providing students with a self-study environment, providing computer-mediated communication with students and other teachers, helping reduce teachers' workload. Table 49 listed the proportion of the teachers who marked each option out of the total 51 teachers.

Table 49: Teachers' Expectations

Features	Percent (%)
Lesson Plan Sharing	88.2
Extra Teaching Resources	84.3
Reducing Workload	82.4
CMC with Students	64.7
Managing Students Efficiently	60.8
Organising Activities	60.8
Student Self-study Environment	60.8
Prompt Feedback to Students	54.9
CMC with Teachers	49.0

In general, all of the 9 features were desirable to the teachers to different degrees. Comparatively, the first three in Table 49 were much more sought after by the teachers than the other features. This suggested that most of the teachers expected the main function of an online CALL system to be facilitating with lesson plan sharing (88.2%), providing extra resources (84.3%) and helping to reduce their workload (82.4%). All the other features were comparatively much less important, especially 'Prompt Feedback to Students' (54.9%) and 'CMC with Teachers' (49%). In contrast, the students' data has shown that they valued instant feedback most in a E-learning environment. Professional discussions and exchanges through online forums or chatrooms were not very desirable to these teachers either. This corresponded with the earlier finding about the teachers' low interest in utilising CMC tools.

When asked if they would like to get some training on using NCE Online, 54.2% of the teachers thought it would be necessary but should be kept short, and only 14.6% regarded detailed, thorough training was needed.

Part II: Teacher Interviews

College English Teachers

College English teachers were interviewed individually in 2003 (5 teachers in total) and 2004 (4 teachers in total). As the majority of the College English teaching staff were female, there were only 2 male teachers among the interviewees. They were deliberately chosen according to their teaching experiences and students' levels. Their teaching lives ranged from less than 5 years to more than 20 years, and some teachers had had other teaching experiences before they came to teach College English at this university. Their students' English levels ranged from Band 2 to Band 6. Some teachers were interviewed at their homes in their spare time while the others were interviewed on their working days. Therefore, the interview times varied considerably, with some less than 30 minutes but some more than an hour.

7.5. Teaching Methodologies and Objectives

All the students were learning English with a set of textbooks called 'New College English' designed for 6 different proficiency levels. The textbooks were designed for a communicative language teaching (CLT) method. All the teachers claimed to be practicing with such an approach. However, the majority of them had undergone an evolution of teaching methods in their careers. One experienced teacher's reflection on himself was probably the most representative of all:

- *'I have been changing all this time. When I was teaching you*[1]*, the kind of concept I held then was completely different from what I think now. If I was to teach that course again, I would never teach you in that way. Nowadays, application has become more important in class, but when I taught you, I was just mainly teaching by 'chalk & talk'. However, this was not because I had learned this methodology at university or somewhere, it was because my teachers had taught me in that way, therefore, I taught you in that way too. Nevertheless, I'm not saying this method is no good. It has its own advantages.'*

Some young teachers had also experienced major transitions in their teaching methodologies in the past few years. In the late 1990s, several universities in the same city were merged

[1] This interviewee was once the author's tutor.

into this university. The College English teachers from the merged universities started to follow the same curriculum and use the same coursebooks as Zhejiang University. To those teachers, this had a great impact on their teaching. For example, one young teacher explained:

- *'The impact is huge, especially after the merge. I used to work on X campus and we used coursebook X, but now we are using New College English. These two sets of coursebooks are designed under different principles. New College English emphasizes speaking, and is topic-based, learner-centred. ... It is more suitable for today's university students with its contemporary topics and communicative activities. Whereas, coursebook X does not have much speaking practice.'*

One teacher claimed that students' response to such methodological transitions was positive:

- *'Teachers used to do a lot of talking while students listened and took notes, but now students participate more, which has livened up the class. Students have got a 'stage' where they can demonstrate their knowledge, ability and interests. ... Students are no longer purely receptive, but have productive activities too.'*

Therefore, many teachers transformed their teaching into a learner-centred, communicative style partly because the global trend of communicative teaching and partly because of the external forces such as the imposed communicative curriculum and textbooks. Naturally, the teachers showed a range of teaching techniques based on their varied understanding of CLT and variations in learners. Interestingly, the younger teachers usually identified themselves with this approach alone but those with longer teaching careers tended to report as having a 'mixture' of methods or an 'eclectic' approach. For example, two teachers with more than 15 years of teaching experience explained their choice of methodology as follows:

- *'I don't think I purposefully utilise one particular teaching methodology. My teaching style is fairly eclectic. I would teach according to the class context—the students, the textbook, the classroom, etc. I don't stick to a certain method.'*
- *'I have to say it's a kind of mixture: everything is used. For example, it's time for CET 4 test now, more attention is put on the explanations of grammar and vocabulary, but at other times, the development of communicative skills is more emphasized.'*

Almost every teacher mentioned shifting to a more grammar-translation type of method when it was near exam times. This reflected a disparity between the promoted CLT practice in the classroom and the skills actually tested in exams. It seemed both teachers' practice and students' learning strategies were directed by the assessment agendas. Little surprise that the students' interviews also revealed their main objective was studying English for exams. After all, this retreat to some more traditional methods was not entirely out of accordance with teachers' own language learning experiences.

Moreover, a young teacher who had a strong belief in CLT said that, even though she seldom taught about grammar or translation, she also changed her tactics for students with different proficiency levels:

- *'Last year my students' English was obviously much poorer than this year's students, so there was more translation work. ... It was not verbatim translation, rather, it was just to give students some background information and some directional content for them to make conversations with. The students this year have better English, so I just give them a topic, and they will start to talk about it among themselves. ... with these students, [I give them] mostly pairwork, or sometimes a whole-class brainstorming type of activities.'*

This view that students of different levels should be taught with different methods was shared by quite a few more experienced teachers as well. That is, when students are at low levels, teaching should be primarily concerned with language structure—grammar and vocabulary; but after students have reached a certain level, teaching can turn its concern to language use—speaking and writing. For instance:

- *'For students at elementary level, we should emphasize language input, such as vocabulary memorizing, grammar learning and reading, etc. Even if there is any oral practice, it should be very simple, not beyond what they have learned. However, after a certain point, especially at intermediate level or above, because of the linguistic accumulation, communication can be trained to a higher level.'*
- *'We can start with more mechanic and static teaching and learning at an early stage. After we've reached certain levels, we will be able to become more flexible and dynamic naturally.'*

Almost every teacher believed all aspects of language learning—grammar, vocabulary, reading ability, listening, speaking and writing—are very important and should be trained integratively. However, the teachers also showed differentiated focuses in their actual practice. Some put emphasis on speaking, some attached supreme importance to reading, and yet others rated listening as essential. They all agreed that grammar was usually not a problem for the students at this university, instead they seemed to have a 'bottleneck' problem with vocabulary. A lot of difficulties arose in their reading, listening and writing because of this.

- *'Hardly any grammar problems. Although they make grammatical mistakes when speaking, they'd realize immediately and make corrections. They try not to make too many mistakes in their writing too. They are often aware of errors themselves, you don't need to point them out for them. ... . The problem for them is the application of vocabulary. There are a lot of words they don't have chances to use, so they forget them gradually. Therefore, I have to make every effort to create contexts for them to use their existing vocabulary, trying to make it a usable resource.'*
- *'After they graduate from high school, their vocabulary is normally less than 3000. After they enter universities, they suddenly need to learn a lot more vocabulary, so*

there is a bottle-neck effect. A second problem is even if they've acquired grammar and vocabulary well, they are not able to use them properly, but rather produce 'broken English' in speaking and writing. A very important reason for that is the exam-oriented education. We can hardly change this situation right now, because we HAVE to have the national entrance exam. As long as there's such an exam, there will be exam-based education.'

Therefore, when asked how students could learn English effectively, most teachers mentioned acquisition of vocabulary and their genuine use in different productive tasks as the most important strategy. Correspondingly, their teaching objectives also showed considerable common characteristics. For example,

- *'I think the most important thing is that the students can enhance vocabulary and reading comprehension ability after class on their own. In class, their speaking ability, the interactions and communications among them are more important.'*
- *'Two aspects: vocabulary and oral expression. I consider both of them very important. If a student wants to negotiate with other students, or express more complicated feelings or emotions, he will need a large vocabulary. Otherwise, he will always stay at a survival-English level. ... To enlarge students' vocabulary is one major objective of our College English teaching.'*
- *'...he [the learner] has mastered the basic grammar and vocabulary in secondary school. Therefore, what he learns at university should be how to 'use' the things he has mastered. I think this should be the focus of our classes.'*

That was probably why some teachers were observed to be putting much (or even excessive) emphasis on vocabulary teaching in class, as one teacher reported:

- *'I had done some observations in some classes, and I saw some more traditional teachers spent their entire class time teaching vocabulary, ... expounding words in class just like a dictionary.'*

Overall, teachers seemed to identify with the values of such a CLT-oriented curriculum, and were willing to apply it in as many circumstances as appropriate in their practice. However, they were also aware of the challenge ensuing from such a curriculum, especially those teachers from the merged universities who had to adjust themselves to both new textbooks and new ways of organizing classes. They had generally felt an increased workload, as one teacher explained:

- *'[CLT] poses a higher requirement for teachers and increases the amount work in lesson plans. ... Teachers used to only need to talk in class, but now teachers and students have to work together on activities. You'll have to think of what students may think in advance, collect the relevant background knowledge, and prepare for the questions students may ask.'*

In addition, due to a recent university reform policy on staffing, the number of English teaching staff was cut down to almost half. Therefore, normally each College English

teacher had to teach at least 4 classes (16 teaching hours/week) with about 150-170 students in total. The principles of CLT—learner-centredness and communication—were apparently more difficult to realize with such large classes without very careful planning and skilled classroom management. It may be inevitable that sometimes such principles would have to be discounted. Little wonder that the student interviews revealed a general dissatisfaction with the chances students could get to practice their English in class. One of the solutions to optimize teachers' lesson plan preparation and reduce workload was the 'collective lesson plan' within different teaching groups (as shown in the teacher questionnaire).

7.6. Student Performance

A question was asked to see if the teachers had noticed any changes in students' performance, including language proficiency and classroom behaviour, in recent years. The majority of the interviewees agreed that there was a visible increase in students' proficiency when they came to the University.

- *'Their proficiency level has risen a lot. ... I remember before 1997, 1996 or 1995, there was no listening section in the English test for the national university entrance examination. Therefore, the students' listening was very poor then, so was their speaking. However, in recent years, especially after 2000, students' performance has improved a lot. This has much to do with the improved English teaching in secondary schools. They have put more emphasis on listening, which naturally brought along better speaking performance. Besides, the whole society has pushed this forward. The importance of learning English is stressed on all kinds of media, and there have appeared a big variety of resource books for English learning. Therefore, the changes in the schools and the whole society have resulted in students' better English proficiency.'*

Students were also found to be slightly more active in class than the previous years.

- *'We definitely get students who are more active in class than those in the past. Many students couldn't speak in class in the past, but the present students are ... much more willing to 'show off'.'*

However, a large number of students were still characterised with their reticence and dependence on teachers, which considerably affected the effectiveness of the communicative teaching practice that the coursebooks called for.

- *'Some students just like to express or show themselves off, and they don't worry about making errors, while others are more cautious, and they wouldn't advance a step unless they are 100% sure. My headache right now is that my students are not willing to speak up. They just think all the other students are just sitting there doing nothing, then they don't want to do anything either. ... They are very engaged with*

the class, listening to me intently, but they just sit there very cautiously. Most time I can't wait any longer for some of them to utter anything because of the time limit, so I have to resort to appointing them individually to say something. However, as soon as you start to do that, it becomes a habit. From then on, they just wait for me to appoint people to speak.'

- *'As far as my students are concerned, they are still inclined to be 'filled'. They may be interested in talking at the beginning, but after a while, they'd lose their interest and return to the receptive mode. ... students would just sit there watch and listen. If you ask a student to say something, s/he normally does not show much enthusiasm'*

While most teachers attributed students' classroom behaviour to their personality and language ability, some also described other difficulties in encouraging students to really 'use' the language. One teacher mentioned that students' learning purposes played a decisive role. For example, the science students were usually not very concerned about speaking ability, but focused more on reading; whereas those who were studying business courses or were interested in communicating with foreigners would put more work into speaking practice. Two teachers also offered some insights on the social influences on students' behaviour in English learning.

- *'I always have this worry that even though I have tried all means for students to practice under different situations in the class, it is still not realistic enough. For example, for a lesson about supermarket, it would be much more useful if I could just take them to a supermarket where they have to speak English to get around, but of course such an environment is not available to us yet. Another problem is the students' vision is very confined within their students environment. ... First, they don't have much social experiences. Second, their learning experiences are completely confined in the classroom as well. ... Most of them only look to their textbooks. ... They only study English as a subject for exams. ... They don't' see a wider and longer-term vision for their study.*
- *'I think it's a social problem. There are more and more 'only child' now. Some of them are indeed very clever, but they just don't want to do any hard work. However, some subjects (e.g., English) do need a lot of hard work, otherwise you can hardly reach the real top.'*

It seemed there was a lack of social environment where students could be immersed in the target language. Besides, being the 'only child' in their families, they would always get things done for them before they would have to start working for themselves. Their limited social experiences and lack of independence affected their motivation and expectation, which, together with learning styles and ability factors, also played a crucial role in determining their performance in the language classroom.

7.7. Teachers' Computing Experiences

The majority of the teachers purchased or started using computers from the late 1990. The computers were bought mainly for work purposes, but interestingly the youngest interviewee reported buying a computer for daily life convenience. Their computers all had fairly up-to-date peripherals attached, such as printers, CD-Writers, USB pen drives, external hard-disks, microphones, speakers and scanners. They reported they were capable of installing hardware and software, and were familiar with the equipments in the classrooms. Their computers were all networked, some with the university intranet, some with the Internet and some with both. They normally used their computers every day. They were proficient in using common applications such as Microsoft Word, PowerPoint, web browsers and communication tools. However, they did feel they were not very competent in the more advanced applications which they did not normally use. When asked if they would be confident in learning new computer skills when needed, their answers were all very positive. They also expressed their willingness to spend time attending computing training sessions if the training was genuinely useful for their work.

7.8. E-learning & NCE Online

All the teachers considered ICT very conducive for their teaching. They frequently searched the Web for resources for their lessons. One teacher mentioned that there were sufficient English learning materials on the university's FTP site and there was hardly any need to look elsewhere for resources. Others also mentioned recommending the useful websites they found to their students from time to time. When computers and the Internet were unanimously acknowledged to be helpful in saving costs and providing rich resources, some teachers were doubtful of the effect of equipping every student with a computer in the classroom.

- *'I'm not against advanced technologies, but I feel it very frustrating when students all hide behind their computer monitors in class. Are computers really good for them? I teach two classes, in one class every student has a computer in front of them, but the other class doesn't have computers. I feel students concentrate more in the class without computers. In the class with computers, there are many distractions, e.g., suddenly students' screen became red.'*

It seemed sometimes ICT could be in the way of effective teaching. They were probably too intrusive to be conducive for classrooms in many circumstances. Meanwhile, some teachers also felt they could not be as spontaneous in a computerized classroom as in an old-

fashioned classroom. For example, they had to avoid having some impromptu thoughts which had to be written down to show students because typing the information into the computer and projecting it onto the whiteboard was not as easy as scribbling on the blackboard.

All the interviewees held very positive attitudes towards NCE Online, even though some of them only used it several times. None of them had found it technically difficult to use. However, this could be due to the fact that many of the interviewees had taken part in building the online environment through inputting content into it. A few of them received a demonstration of how to use NCE Online once, but most of them did not get any training. One teacher commented that most English teachers were relatively weak in technical areas. Without any training, the attainment would be very limited if they were left to 'grope along' on their own, therefore, she suggested it be necessary to gather the teachers around for some intensive training.

It seemed most interviewees regarded NCE Online as a good after-class study tool, rather than an integral part of their classes, but they kept reminding their students to make use of it from time to time.

- *'I have been using it. I like it. I think it's good because it can help teachers. ... I think it's very good for self-study. ... Of course they can ask a teacher when they have any problems, but NCE Online has already offered good instructions and assistance for all the reading in our textbooks, which is much easier to access. ...[The most helpful feature is] The 'After-class Reading'. Because I don't have enough time to cover much of after-class reading passages in class, I just ask students to work on them in NCE Online after class and then I check in class. Also it helps with the acquisition of vocabulary. ... The games have very vivid cartoon pictures, really cute, students will have deeper impression.'*

Some of them had been using NCE Online since it came into being, while some did not use it in class regularly for various reasons:

- *I think it could be helpful for teaching too, but somehow my class time is always very pressed and can't find time to use NCE Online with my students in class.*
- *'I've already introduced it to all my classes. Two classes went well, but the third one didn't go very well because the network in that classroom was very slow and students had to wait too long, the fourth one was worse, the network in that classroom is not working at all.'*
- *'As an assisting tool for classroom teaching, I think it's very good. ... I'm not using it this semester, because the network in my classroom never works this semester.'*
- *'...the teacher-computer in my classroom is infected with all kinds of viruses, and there is no anti-virus software on it. ... When I first tried to use the courseware in class, as soon as I tried to load the page, the computer gave me a black screen, and*

this happened to every computer classroom. I went to ask the technical staff, and they told us it was NCE Online's fault. ... I had to accept this explanation although it worked fine on my own PC. Then one day, I ignored the black screen and carried on with my lesson, after 10 minutes, the courseware was suddenly loaded! I suddenly realized it was not that the courseware was not good, but that the computer's RAM was too small and couldn't handle the software promptly. ... I know there are lots of language resources on the university network ... but I am not able to show them either because I can't access the network from my classroom. If I want to access the Internet, I'll have to pay to get a login, but I wouldn't want to pay that money. Therefore, it is really bad and I feel really frustrated.'

This last quote clearly showed that even a fairly IT-literate young teacher like this interviewee was deterred by the inadequate facilities, poor technical support and network costs.

Most teachers said their students had positive responses to NCE Online. For example, one teacher said, 'when I play something from NCE Online, they all watch quite intently, very concentrated.' Some students would tell their teachers directly what they thought of the system and what they were interested in, e.g., the word games. However, some teachers were not able to use NCE Online in class because some of their student groups were receiving lessons in computerized classrooms while some were in normal classrooms. In addition, they were aware that most students did not have computers in their first year, and there were some financially disadvantaged students, too. Their students also told them about the inadequate conditions in the open-access labs. Quite a few teachers expressed their concerns about the inequality that might ensue if NCE Online was made a compulsory, rather than voluntary, part of the course.

- *'Many students told me that they don't have their own computers and have to go to computing labs to use computers. They will go there, but they find it very inconvenient. ... [Having to pay for using the networks] will discourage them from using it [NCE Online].'*
- *'Another student told me that he doesn't have a computer, but the university requires students to choose courses through the intranet, so he had to go to the labs. He waited and waited for a computer for ages, and didn't succeed, so he went to an internet bar outside the campus to do that. However, even the internet bar was crammed with people, and he waited for 2 hours before he got a computer. ... a lot of them don't have computers, and there are some really poor students. ... I don't want to make them feel alienated, that's why I didn't make it a compulsory requirement. ... Some of my students can't even afford to buy listening tapes. How do you think this can be solved?'*

While NCE Online was treated as a supplementary resource for voluntary access, the teachers were not optimistic about the real usage of it by students.

- *'I hoped that they'd use it frequently. I reminded them of it all the time last year. ... When you ask the students, they would tell you it's interesting. But if you check their actual use record, you'll find very few students are using it as an integrative part of their study. Students are all very purpose-driven nowadays. They'd think since they can pass the exams without using NCE Online anyway, they would not make regular use of it.'*
- *'Students' initial reactions were all quite positive. However, later on, ... whenever the intranet becomes unreliable, they have to wait or get dropped offline, wasting a lot of time, so they will become more and more impatient.'*
- *'I'm not very confident in their autonomy. I'm not sure they will really do that after class. To be frank, they do have a lot to do besides coming to this course.'*

When asked how they reckoned NCE Online could improve, many regretted that they had no idea in that they did not know about ICT well enough. However, with regard to what NCE Online already had, the teachers would like to see more updates for the extracurricular resources and some rethinking about the 'Online Communication' feature. They were aware that students were regular participants of some more popular English discussion forums elsewhere, but 'Online Community' obviously needed some redesign in order to trigger users' interest. Nevertheless, there may not be a shortage of teachers who were holding a view like this one:

- *'If you really want students to talk about something, you should do that in class. Discussions online won't help improve their linguistic capacity too much. ... [In online discussions] Their language is usually very short, ungrammatical and full of symbols. I think the biggest problem with online discussion is that you can't talk about a topic in depth. Especially, the more people take part in a discussion, the less in-depth it will be.'*

While the quality of online communication in the target language remained arguable, all the teachers realized computers were indispensable in their teaching now. However, they also maintained that ICT should only play a facilitative role and the teacher should still be the predominant force in language education. They suggested, in order to make NCE Online truly effective, it should become an integral part of the course. Nonetheless, currently there were still many hindrances for this to be realistic even if some individual teachers were willing to incorporate it into their classes as much as possible.

NCE Online Development Team

In 2003, the NCE Online project leader was interviewed individually, and the development coordinator and the technicians' team leader were interviewed together. The former lasted for about an hour while the latter about half an hour. Both the project leader (hereafter referred to as 'PL') and the coordinator (hereafter referred to as 'DC') were teachers from the College of Foreign Languages and the technical leader was a technician staff member from the College of Distance Education. PL was a senior staff, nationally renowned for her extensive teaching and research expertise in English education. She initiated this CALL project and her role could be described as collecting ideas, organizing, providing subject expertise, adjusting and suggesting directions, and securing financial support for the project. DC was a relatively young teaching member who mediated between the teachers and the technicians and managed the design of the whole system. Through interviews with workers from these three key aspects of NCE Online development, it was hoped that experience in developing such a large-scale online learning environment (OLE) in Chinese higher education could be learned in more depth.

7.9. NCE Online History

Timeline

The idea of building an OLE for the College English course first started between 2000 winter and 2001 spring when a team of teachers were finishing compiling the first edition of New College English textbooks. The leading editor of the textbooks, who later became the project leader of NCE Online, had undertaken substantial discussion with the other teachers about the possibility of establishing an OLE to assist the use of these new coursebooks because the University Teaching Administration Office asked the college to set up a courseware project. However, PL recalled that the funding was very poor because the university only intended it to be a very small-scale courseware that would consist of some exercises or a collection of test practices. Later on, the College of Distance Education who were aiming to deliver most of their courses online saw the potential of the original project and offered to fund it to be developed into a fuller, comprehensive environment. The Distance Education College also provided technical staff while the Foreign Languages College provided infrastructure design ideas, language pedagogical principles and content. About 20 English teachers and 8 technicians took part in the construction of the first version of NCE Online. The teachers had already written up the scripts for the courseware in the

2001 summer, about half a year before the technicians came in. Therefore, by the time the researcher started this survey about NCE Online, it had undergone more than two years' development.

Objectives

Both PL and DC claimed that the primary goal of NCE Online was to facilitate *students'* English study.

- *PL: It's impossible for teachers to provide everything to students in class. [And] You have to take individual differences into account. ... I think the best thing about E-learning is it can maximize the individual needs we want to accommodate.*
- *DC: We hoped such a courseware can save students study time, increase their efficiency and interest in the subject.*

It was mainly intended to be a supplement to students' classroom learning. This guideline led the team to thinking about how to deal with the difficulties students had in their studies. They firstly considered it important to provide students with a wealth of resources with low costs. Secondly, they recognized the primary difficulty of all the Chinese EFL learners was vocabulary. Since the textbooks were popular in the country, their content could be useful resources for the OLE initially. As a result, the main component of NCE Online—NCE—was the reading and listening content from the paper-version textbooks, supplemented with detailed grammar, vocabulary exposition and translation, and voice-reading for each sentence of the reading passages. The 20 teachers made a meticulous effort to input into the system the texts, translation, and voice-reading clips, and so on. In addition, a variety of vocabulary games ('Word Games') were developed and a limited amount of video and audio entertaining materials ('English For Fun') were added. Ideally, the students could consult NCE Online if they had difficulty in grammar or reading comprehension which their teachers did not have enough time to help with in class. Thus, NCE Online was meant to save both the teachers' and the students' time. In fact, a student could learn the whole College English course through NCE Online as the main content from the textbooks were all in the system. Therefore, the Distance Education College used it for their English majors and PL reported that they were in fact using it to a better effect and were very satisfied with it. Another objective, of a much less urgency, was to facilitate teaching, to help teachers reduce their workload. As DC explained, 'Since the teachers in the courseware development team had done so much work, we hoped the rest of the teachers wouldn't need to do these work any more so as to save them time through resources sharing.'

On the other hand, the technical team leader was asked about their technical objectives when developing NCE Online. He explained that the Distance Education College where he worked usually only developed static course programs which could then be burned onto CDs as stand-alone learning materials. As far as he was aware, the courseware that the University had developed by then were all static systems which did not normally involve databases. Therefore, initially, due to the time pressure, they were still trying to develop NCE Online into a system with static webpages. Later on, owing to a suggestion from a former College English teacher who was working in the E-learning field in Canada, they realized that a static program would have to have specialised technicians to update it, whereas, in order to enable ordinary teachers to update for themselves they should turn it into a database-driven system. Hence, the technicians' objective was to build a database-driven content management system which the teachers could manage for themselves easily.

In general, both sides, the educators and the technicians, were satisfied with the results of the NCE Online development. They reckoned the system had fulfilled their initial pedagogical and technical objectives.

Funding

As aforementioned, the project was commenced with a limited fund from the University, but was then mainly funded by the College of Distance Education who also provided technical staff. In addition, a proportion of the royalties gained from the publication of the New College English textbooks was allocated for NCE Online. It was due to the far vision of PL that the OLE would become an indispensable part of the promotion of the printed textbooks in future even though web-based, dynamic CALL was hardly known in the country at that time and NCE Online was the only one of this kind. In all, the team did not feel much pressure of funding at the outset of the system development.

7.10. Development & Implementation Difficulties

The development and implementation of NCE Online were by no means a smooth process. PL admitted they had been struggling with all sorts of difficulties:

- *'...there are numerous hindrances. Every step is with great difficulty. I think we are advancing all the time, but very slowly, like wading through treacle.'*

The following major difficulties were revealed in the interviews.

Knowledge

The biggest difficulty PL mentioned was how to achieve interactivity through design. She reckoned it was relatively easy to achieve learner-computer interactions for listening, reading and writing practice, however, interactions were much more difficult to achieve for speaking practice. Even though the system integrated a text-based chatroom, PL was worried that there would still be no real off-head spontaneous interactions. She regretted that such difficulty in design was also partly due to the fact that she herself was not a programmer. She was acutely aware that an online courseware should be a marriage of technologies and language teaching theories, methodologies and goals. Yet she found that most existing CALL courseware demonstrated that 'the technical persons donot know what the teachers want, whereas the teachers donot know which of their ideas are not realistic while the others can be realised easily by the technicians.' She reflected:

- *'I used to spend a lot of time telling the technical staff what I wanted to achieve, and asking them about the possibilities. If I were a person who knew both fields, it would have saved me much time.'*

Similarly, DC and the technical team leader also felt they were not as knowledgeable about what they were going to develop as was needed. DC had been doing technology-related work before starting with this project and had some knowledge of programming, but she had no experience in managing the construction of an OLE. The technician had done some database work before, but they were not for learning systems but for engineering projects. Consequently, the development of the system was a learning curve for everyone involved, as DC described:

- *'At the beginning, we didn't have very specific objectives because this was new to all of us and we didn't have much experience. We were learning throughout the whole process.'*

The technical leader mentioned they had great difficulty in interface design at the beginning. They had to hire someone to redo it completely. The technicians did not have too many other problems, and the system performance was satisfactory in its first year. However, as it was not optimized enough, it started to cause server crashes whenever it experienced high volumes of user access [2]. In addition, DC also mentioned that the lack of computing knowledge from the teachers' side was also once a problem:

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[2] Information from casual talks with the development team in 2004

- *'Many teachers are not very familiar with computers. So we encountered a lot of difficulties explaining to them the design and content input procedure. In the end, after a few months' hard work, the teachers managed to complete their work fairly successfully.'*

Time Pressure

Another critical factor was the time pressure. The teachers involved in NCE Online development were all full-time teachers. They had to work on NCE Online in their spare time. After the previously mentioned staff reform policy, the College lost many teachers, which had made the situation even worse. PL was fully aware of the limited time and effort she could expect from the teachers in the team:

- *'For the time being, every teacher, including the coordinator, already has a heavy workload. It would be hard to ask them to make more effort. ... so I don't think we are able to expand it too much at the moment.'*

None of the programmers were full-time workers for the project, either. At some times, the technicians' priorities even dictated the teachers' pedagogical priorities due to the time pressure, as PL explained:

- *'They [the technicians] want very clear, finalized instructions before they start to work. They don't like changes. So we had to persuade them to change from time to time.'*

Communication

The knowledge gap and time pressure somewhat augmented the difficulties in communication between the teaching staff and the technical staff at the beginning. DC recalled:

- *'There were quite a lot of problems arising between the teacher team and the technical team. We assumed the technicians could understand what we thought easily, but it was not the case at all. So the communications in-between didn't go very well and we had thus gone about a lot of detours. When we realized this problem, we started to reorganise our ideas and made new plans, and then everything went on more smoothly.'*

Fortunately, after mutual adjustment, in the end the collaboration turned out to be satisfactory.

Maintenance

It was recognized that maintenance work was very much needed, however, it seemed very difficult to keep up with it. PL reckoned it needed at least two full-time workers to do the maintenance work. However, the College of Foreign Languages was not supportive as it did

not finance the project initially. Furthermore, because the College was cutting down employees at the time, it would not approve of getting more staff just for this project. Although by the time of the interviews, there were still 5-6 technicians, it was mainly just DC and the technical leader who were keeping up the maintenance. The teachers were too busy with their classes to be asked to work on NCE Online any further. Therefore, the project was very short of staff for maintenance and further development.

Computing Facilities

To fully incorporate NCE Online into the classroom teaching, the computer facilities in classrooms were essential. However, the number of computerized classrooms was limited. The College was reluctant to equip all the classrooms with computers all at once in fear of the pace at which computer hardware specifications become outdated. It would rather just purchase computers for a few classrooms at a time and then after a few years get upgraded computers for a few other classrooms. As mentioned in teachers' interviews, just because some teachers had both classes in computer classrooms and classes in normal classrooms, they had chosen not to use NCE Online to avoid creating inequality among students.

The university network was also very problematic. DC mentioned that the intranet was once infected by the blastworm, and the whole network became paralyzed for an extended period of time. In addition, many teachers had dial-up connections to the Internet at home, which could not provide a satisfactory network speed for using NCE Online.

User Acceptance

The degree of user acceptance, especially the teachers, had largely influenced the implementation of NCE Online. The system was first piloted with about 200 students by PL and two other teachers. PL used it in class, and found the students 'were obviously very satisfied with it'. Students showed particular interest in some parts of NCE Online, such as 'Word Games' and 'English For Fun'. The analysis of user log information indicated that, DC said, it was not as widely received as they had expected although it was not bad either. The teachers were in general positive about the advent of such a resource. However, the actual teacher behaviour was not in congruence with their attitudes and beliefs. The teachers were mostly using their PowerPoint presentations in class instead of the readily usable OLE. This could be attributed to the fact that NCE Online did not have a fully-developed component for teachers except a module where teachers can exchange ideas and resources. Nevertheless, a more likely factor, both PL and DC reckoned, was the more or less resistance from the teachers. On the one hand, DC found through her contact with other teachers that

most teachers did not think the OLE was very relevant to their teaching even though they were positive about it. On the other hand, there was also an evident tendency of fear. PL reckoned some teachers were technology phobias and simply did not want to use NCE Online. Some resisted it because they feared it might take over their teaching positions. This fear was aggravated even more by the University's teaching staff reducing policy. Even with those who tried to use it, as soon as they encountered hardware and software problems when trying, they began to avoid using it. For example, the login page was designed with a Flash animation which would take a computer with dial-up connection a long time to load. Quite a few teachers thought the site was broken since they did not get a page loaded after a long wait. They therefore gave up using it entirely. DC reckoned that students' use of the system was in fact dependent on the teachers:

- *'To certain degree they do not want to use it themselves, so they won't recommend it to their students either. Therefore, this has prevented many students from getting to know this courseware and using it regularly.'*

7.11. Future Development

Both the coordinator and the technician held that there was still much to be improved. However, PL was more concerned with the more effective implementation of the existing system rather than innovations. She felt that both the mentality and facilities of many teachers were not ready for NCE Online yet, therefore, the most important thing at present was dissemination: to ensure more and more people know and use NCE Online. She believed that the teachers could not stay in a passive, avoiding mode forever. Therefore, what could be done first was teacher training. However this might not be feasible yet as the teachers did not seem to have enough time and energy for anything extra besides their teaching schedules.

In the long run, NCE Online was aiming to develop more new functions. The first priority would be online tests and facilities to enhance speaking practice. Online voice communication was rated as the most important innovation the team would undertake in the future.

Discussion

7.12. Teachers' Demographic Data

51 College English teachers participated in the questionnaire survey and 9 of them in the interviews. The majority of the teachers were female and under 40 years old. They were teaching the first and second year undergraduate students from the lowest English proficiency level Band 1 to the highest Band 6. Most of them taught at least 4 classes of one level for 16 hours per week, but a few of them taught classes of different levels.

7.13. Teaching Practice

There was a national syllabus for the College English (CE) course in all the higher education institutions. The coursebooks that Zhejiang University adopted, New College English, was designed by the College of Foreign Languages itself based on the principles set out in the national syllabus. Therefore, a substantial amount of uniformity was expected in the teachers' practice since everyone had to follow the same principles. However, the teachers still had noticeable variations in their beliefs and teaching strategies.

Teaching Teams

All the teachers belonged to either of the two teams that were in charge of the first-year and second-year students. In each team, teachers were divided into different groups according to the proficiency level they were teaching. Every teacher in each group was usually responsible for designing one lesson plan in Powerpoint format for one unit of the textbooks, and the group had regular meetings to discuss about and share the lesson plans.

Teaching Methodologies & Objectives

The textbooks for the CE course were designed according to a communicative teaching methodology. All the units were theme-based, and consisted of activities and exercises that would centre around learners and require much pairwork or groupwork. Consequently, in the interviews almost all the teachers claimed they applied a communicative language teaching (CLT) method to their classes. However, in reality the practice was more or less varied among the teachers. The younger teachers tended to hold a very 'pure' view of the

communicative approach and seldom touched upon grammar or translation while the older teachers reported having a mixture of methods or an 'eclectic' approach which meant teaching of linguistic knowledge, such as grammar and vocabulary explication, was not excluded. This was a result of both the teachers' own learning and teaching experiences in the past and the curricular requirements.

First of all, the majority of the teachers had experienced an evolution of language methodologies in their own language learning and teaching history. One teacher described a very typical phenomenon among his colleagues: most teachers were trained with a grammar-translation or audio-lingua approach when they were acquiring the language. It is often true that one would always try to teach others the way s/he was taught. Therefore, most teachers were comfortable with the more structural views on language acquisition and had been practicing their teaching with such methods until the communicative approach was introduced in the College. Before the other three universities were merged into Zhejiang University, the CE teachers at the original university had been practicing CLT for about a decade. Later, the teachers from the merged universities had to follow the same curriculum and coursebooks. Hence, many of them felt it was a substantial transformation for them to turn away from a teacher-dominant style to a learner-centred style, from a focus on grammar and vocabulary to communicative skills. Nevertheless, most of them identified with the value of the CLT approach and claimed to be applying it to their classes. One teacher reported that the students were apparently positive about such a transition of teaching methods. The transition ensured that students were more involved in class and had to be productive of the language rather than receptive of it. When the coursebooks offered a variety of activities for students to perform, they were given a 'stage' where they could demonstrate their knowledge and ability and thus the class became more lively.

Secondly, teachers' practice in reality may not always be guided by their ideals. Many teachers were still observed to be spending considerable class time teaching vocabulary. Nevertheless, this could have something to do with the shortage of teaching staff. Due to a university staff policy enacted in 2003, nearly half of the CE teaching staff quitted their jobs, which left each of the rest of the staff with at least 16 hours' teaching every week with 150-170 students. The tenets of CLT—learner-centredness and communication—were difficult to realize in such large classes without very skilful classroom management. Especially, those teachers from the merged universities who had to adjust to both new textbooks and new teaching approaches felt a much heavier workload. Inevitably, sometimes such ideals of

CLT had to be compromised, consciously or unconsciously. Furthermore, teachers were all acutely aware of the disparity between what the CLT approach tried to achieve and what the English exams tried to test. Even though the national syllabus promoted training for more communicative use of the language, sadly the exams, including the national proficiency tests CET 4 and CET 6, were still mainly testing grammar and vocabulary knowledge. Almost every interviewee mentioned that s/he shifted to a more grammar-translation method when it was near exam times. As we may recall from students' survey data, they also mentioned a strong tendency of learning for the exams. Little wonder that both teachers' and students' strategies were directed by the assessment agendas. As one teacher pointed out, teachers could hardly change this situation at the moment because the English education would be exam-oriented as long as such exams existed.

Thirdly, almost every teacher believed that all aspects of language learning—grammar, reading, listening, speaking and writing—should be trained integratively. CLT may be a good method to improve speaking ability, but the teachers attached varied importance to the other aspects as well. For instance, they all agreed that grammar was usually not a problem for their students, but some reckoned their students needed more training on reading while some regarded listening as a breakthrough point. It was also agreed that a great deal of difficulty arose in reading, listening, speaking or writing because of students' 'bottleneck' problem with vocabulary. A few teachers pointed out that it was not because the students did not have enough vocabulary, but because they did not know the appropriate contextual use of them to express themselves. Therefore, the interviewees showed two common teaching objectives: to enlarge students' vocabulary and to enable more oral practice. Many of them also believed the enhancement of grammar and vocabulary could be left to the students themselves after class while the others tried to tackle all these problems in class for which some may fall back to more traditional grammar-translation exercises and some still tried to use communicative exercises to activate learners' existing knowledge into a usable resource.

Another unanimous belief among the interviewees was that learners of different levels should be treated with different methodologies. Most agreed that for beginners the emphasis should be on grammar and vocabulary whilst communicative activities should be kept to its minimal, whereas from the intermediate level on, actual use of the language should become dominant. Even some young teachers who were strong proponents of the CLT methodology found in their practice that with low-level students, they inevitably had to fall back to more

grammar exposition, translation and vocabulary exercises because the students did not have the basic competence to carry out any communicative tasks.

Student Performance

The majority of the interviewees found their students came to the university with higher and higher proficiency levels year by year. Some teachers reckoned this improvement was due to the changed English course syllabus in secondary education which started to put more emphasis on listening and speaking. However, some teachers believed it had more to do with the increased exposure to English materials in students' daily lives and the propelling incentive for English learning from the society where good English proficiency was essential for better education and career opportunities.

The teachers also found that their students were becoming slightly more active in class than their elder peers. A very small number of students liked to express themselves in class or 'show off' without worrying about making mistakes while the others still 'wouldn't advance a step unless they were 100% sure'. In general, most students still maintained considerable reticence and dependence on teachers. This had been quoted repeatedly by the interviewees as an obstructive factor in the implementation of CLT. One teacher described that her students were very attentive in class, listening to her intently, but they just avoided speaking up. Her students fell into the habit of waiting for her to call upon them to speak. Other teachers also felt that their students were still inclined to be 'filled' or directed. However, some teachers were aware that it was not entirely attributable to students' personalities or learning styles—their learning purposes also played a crucial role. For example, the science students normally were more concerned about reading rather than speaking ability. Moreover, the teachers were clear that a fair number of students had no clear objectives of learning English other than for the exams.

According to some interviewees, another distinct characteristic about the Chinese students was that they were all born under the 'one child' policy. They were typically overprotected at home and would expect most things to be done for them. They would have very little social experience when they came to the University. Therefore, they could not be expected to have all the social skills and interests needed for the communicative activities, and some could not even understand the communicative contexts the textbook or their teacher created for them as they would never have experienced or imagined them.

On the whole, the teachers were all trying hard to create as many communicative opportunities as possible in their teaching, but this approach may still encounter many obstacles with Chinese students. Chinese learners may have to be given some training on learning strategies and sufficient time to be attuned to a CLT methodology which has been shown to work well with learners from a more outspoken and outgoing culture, e.g., European students.

7.14. Teachers' Computing Experience

With regard to the teachers' computing experience, the questionnaire data were in very good accordance with what the teachers reported in the interviews.

Hardware & Software

Most teachers purchased or started using computers from the late 1990s. 66.7% of them had desktops, 7.8% had laptops and 23.5% had both. About two thirds of them had Internet connection only while slightly less than one third had both the University intranet and the Internet. Most of their desktop machines were using Windows 98 or 2000 while two thirds of the laptops were in Windows XP. No use of other operating systems, such as Mac, was reported. Their choice of storage devices also showed that they had had fairly short computer use history. Nearly half of them had never used floppy disks whereas more than half of them used external hard disks and almost everyone were using USB pen drives. Very few teachers had used CDs or zip disks. Obviously these teachers started using computers fairly recently, and had skipped the stages of floppy disks, zip disks and CD writing in IT industry development. The remarkable popularity of USB sticks was later found out to be due to the fact that they were each given a USB pen by the department to facilitate computer-assisted teaching. Overall, the questionnaire and the interviews showed that most teachers had computers of fairly sufficient specifications and up-to-date peripherals attached, e.g., printers, scanners, external hard disks, etc.

Computer Usage

Most teachers used computers every day, but they were used dominantly for teaching purposes. Computers were also used to a certain degree for their professional development, such as academic or research matters, but they were hardly used for recreational purposes. This appeared to be an outstanding contrast with their students' computer use. The students reported using their computers for recreational purposes substantially more often than for study purposes. This suggested a gap between the teachers and their students in what they

were familiar with. Therefore, we may not assume that both teachers and learners would be comfortable to use a certain software when it is to be integrated into a CALL system.

Over half of the teachers accessed networks for 10 or more hours every week. The vast majority used their network connections for emailing and surfing for information, and half of them also used them for downloading resources. Very few of them used online applications such as shopping, banking, forums/chatrooms or games. What called for attention was that only 10 of them listed forum/chatroom as one of their main uses with networks. On the one hand, NCE Online was an environment that aimed to create a learning community for both teachers and students and many students mentioned in their interviews that they expected teachers' participation and guidance in online communicative activities. On the other hand, it seemed that the teachers were not very familiar with or at least not very interested in using CMC tools. This mismatch may become a major drawback for what communicative CALL is aimed to achieve.

ICT Skills

Around 60% of the teachers were capable of installing software packages on their computers, but still nearly a quarter would rather ask other people to do that for them. When it came to operating systems, most of them would need help or let others install for them. As for hardware installation, they were much less confident in their ability. For common peripherals such as printers, about 40% of them could install them independently, whereas for less common equipments such as scanners or computer parts, majority of them would rather ask more IT literate people to install for them. It seemed, therefore, for a CALL system to be used by the teachers at ease, it should reduce the possibilities of requiring the teachers to install any specialized software or hardware equipment unless truly necessary.

Their assessment of their own network skills was again an important indicator of the usefulness of NCE Online to them. They were very familiar with web browsing and information searching, and proficient enough in email programs such as Outlook Express. However, they were significantly less capable of using CMC and FTP transfer tools which were both considered common uses by the students. Interestingly, with synchronous CMC tools, the teachers seemed to have polarized familiarity, which suggested that they were either unfamiliar with them at all or very good at using them.

The teachers reported to be very competent in using Microsoft Word, Powerpoint and anti-virus software. However, they were considerably less skilful with more specialized applications, such as image/audio file editing, scanning, changing file format, or webpage editing. Even for more common software such as Winzip, PDF Reader and Excel, their self-evaluated skilfulness barely reached the medium level. Nevertheless, while some applications could be very useful if teachers wanted to create CALL materials for themselves, e.g., audio file editing, they should not be 'forced' to master specialized software knowledge to make use of the existing CALL resources.

7.15. E-learning & NCE Online

As limited by funding and other resources, only 20 College English classrooms were entirely equipped with computers and network connection where not only the teacher but also every student had a desktop in class, whereas the rest of the classrooms only provided the teachers with computers and the network. However, the College was still aiming to make at least 80 classrooms fully computerised. Apart from computers, all the classrooms were also equipped with VCD players, speakers, amplifiers, data projectors and overhead projectors.

As the University was trying to promote E-learning in every subject, English teachers were generally positive of the use of computers in their teaching. They appreciated the usefulness of computers and the Internet as an inexhaustible source of authentic teaching and learning resources as well as a medium of low costs and easy access. However, there were also teachers who felt technologies were 'in the way' of effective classroom teaching. For example, several teachers mentioned that the computers in the classrooms often became a shield that students could hide behind easily. They were very concerned when students became more isolated from their classmates and the teacher because of the intrusion of the PC machines. In addition, with technologies, they could not feel as spontaneous as in a traditional classroom. For instance, the teacher would have to type something through the keyboard and project it on to the whiteboard in a computerized classroom while s/he would feel much more comfortable to scribble on a blackboard.

NCE Online Use Frequency

The hardware availability at home and at university and the teachers' software knowledge seemed to be sufficient for use of NCE Online. They were positive about having such an assistive resource. Over half of them considered it very necessary, but about one third

thought it was better than none and 8% were not too bothered whether it existed or not. Some teachers reported that they had been using it from the very beginning while a marked 13.7% of them had never used it. The majority only accessed it occasionally. It was clear that the low use frequency was not due to its technicality as all the interviewed teachers claimed it to be quite easy to use. When asked if they would like to have some training for the system, more than half of them reckoned only a brief training would be necessary and less than 15% wanted an extensive training.

The interviews revealed several reasons for the teachers' reluctance to use NCE Online. First of all, even though many teachers liked it and found it helpful, the majority regarded NCE Online as a good self-study tool for students after class. Therefore, it was not considered an integral component of their teaching. In fact, some teachers chose to exclude it from their classes due to some logistical and ethic reasons. These teachers had classes in different kinds of classrooms: some in the fully computerized ones while some in traditional ones. Hence, they felt if they integrated NCE Online content into their lessons, some students would be disadvantaged since they were not in computerized classrooms. Moreover, for the teachers who were teaching the first year students, they were aware that many students did not have easy access to computers (as was shown in the student questionnaire data). One teacher mentioned that some financially poor students could not even afford to buy cassette tapes. Their students had also told them the difficulties in accessing the computer labs. Therefore, the teachers did not want to create an unequal situation for students who had computers and those who had not by making NCE Online a compulsory part of the course.

Secondly, many teachers were not able to use the system in class because the computers and network connection were often broken down. Some teachers mentioned that the machines were not well-maintained and they were not properly configured for public use. Often, the machines could not function because of system errors or viruses, and the University intranet was very unreliable too. In addition, when the facilities broke down, there was often no timely assistance from the technical staff. In the end, most teachers only used their teacher computers for whiteboard projection of their tutorial presentations. Lastly, some teachers found that their class time was too pressed for other activities already. It was difficult for them to include something extra. Just as Kenning and Kenning (1990, p.12) have pointed out, hard-pressed teachers do not have much time to devote to such predefined learning

environments, 'particularly when faced with having to adapt to changes in syllabuses and examination requirements' (also see Cuban 2002).

NCE Online Helpfulness

The teachers were asked to rate the helpfulness of NCE Online's four modules. Their overall ratings were not very high. The 'English For Fun' module received moderately higher ratings than the others. Not surprisingly, the 'Online Community' and 'For Teachers' modules were considered the least helpful since they were mainly online communication facilities. The interesting finding was, same as their students' opinions, the teachers did not perceive the 'NCE' module, which was almost the e-version of the textbooks, as very helpful either.

The teachers found their students generally held a positive attitude towards NCE Online initially. They observed that their students showed great interest in certain elements of NCE Online, such as the movie clips and word games. However, they doubted how much their students would be using it voluntarily after class.

When asked what they thought should be improved in NCE Online, many interviewees apologized for having no ideas at all since they did not know about ICT and CALL well enough to be able to tell what was available and effective for English teaching and learning. With the existing components in NCE Online, they suggested that there should be more updates for 'English For Fun'. In addition, they were aware that their students were regular participants of some online forums elsewhere, so they also suggested 'Online Community' to undergo some redesign in order to attract more participation. Yet, there were also teachers who believed online communication were not conducive, but detrimental, to students' language acquisition due to the low quality of the online communication language.

In the questionnaire, the teachers were given 9 specific features to choose as their expectations for any CALL system. It seemed that most teachers expected a CALL system to be a platform where they could share their lesson plans and obtain extra teaching resources. In addition, a CALL system was overwhelmingly desired as a tool to reduce their workload. While the first two expectations could be easily achieved technically, and in fact could have been realized already if the teachers had made full use of the online communication facilities in NCE Online. However, the wish to have reduced workload might be a misconception of E-learning in general. As the literature shows, although E-

learning can help reduce some of teachers' logistic or organisational duties, it generally increases the part of tutors' work that involves more creative and personalised endeavour. Therefore, many teachers were bound to be disheartened when they found that CALL could not be a substitute for themselves. Such unrealistic expectations might have in part influenced their attitudes towards NCE Online and the way they made use of it.

Chapter 8 Conclusion

This study was intended to uncover the factors which are affecting the effectiveness of the implementation of CALL in Chinese higher education, with a particular emphasis on Chinese students' learning styles and their attitudes towards E-learning in general and CALL in specific. The university investigated is a typical, large comprehensive university in the country. The vast majority of its students are male and majored in science and engineering disciplines. It was found that these Chinese learners, fostered by a cultural and educational system distinct from those in the west, did manifest unique learning preferences and perceptions on E-learning. It was hoped that, through a study of learners in this very representative university, the development of CALL in Chinese higher education could be better understood and equipped with more contextualised guidelines.

The effectiveness of an E-learning system, be it for language learning or any other subject, is ultimately dependent on the *learner*'s attitude and behaviour toward it. This research showed that learners' attitudes were not only influenced by individual factors such as learning styles and computing experiences but also by their teachers' and university's practice. In fact, evident in this study was that the effectiveness of CALL was greatly affected by the *misalignment* of needs and goals between these different stakeholders.

8.1. Students' and Teachers' Computing Experiences

This study found that, although about half of the students had computers and the Internet at home before they came to the University, their experience with E-learning prior to university was very limited. Neither had they thought computers would be important in their university life at first. Nevertheless, by the end of their freshers' year, 90% of them had gained easy access to private PCs with network connections, and a quarter of the computer owners were in fact in possession of laptops instead of desktops which indicated a rapid trend toward utilising more mobilised technologies. The students had generally very positive attitudes toward computer technology. They recognised the usefulness of computers in their daily and academic life, and were very confident in learning new computing skills if necessary. Neither gender nor discipline factors played any significant role in differentiating students' computer ownership, computer purchase tendency, computer attitude or self-reported computer competence, although interestingly, female students showed significantly less confidence in using computers than their male peers. This indicated that male students were psychologically more self-assured than female students, even though female students had no less ability to become as proficient in common applications as their male counterparts. The

same phenomenon was also discovered in IT surveys in the UK and New Zealand universities (Gunn *et al.* 2002; Gunn *et al.* 2003). Students' overall computing competence, based on self-assessment, improved considerably after the first year's study. The most visible improvement was in the use of common applications such as emails, web browsers, word processing and presentation programs. In addition, the first-year students showed better familiarity with ICT and were more confident in their ICT skills than the second year students when at the same stage of their academic lives.

In contrast, most teachers have only started to use computers in recent years. They were both less computer literate and confident than their students, especially in the skills related to the Internet, e.g., CMC tools or online games. Moreover, they were faced with the more and more IT literate new students every year while they felt unconfident in catching up with the technological advancement. The teachers were also different from their students in what they used computers for. Students typically spent more than 10 hours per week on computers for recreational purposes, while teachers predominantly for work and research purposes. Furthermore, the amount of time that the students spent on recreational use increased continuously and much more sharply than their study use as they progressed into junior years. This not only indicated that E-learning was in general non-essential or even negligible in their academic life, but also showed that students and teachers were familiar with different computer uses, which may have affected their perceptions as to what technologies would be useful in CALL and how they would utilise them.

8.2. Students/Teachers' Computing Needs and the University IT Infrastructure

Although the majority of students had convenient access to private computers, with more than 6,000 freshers each year, the absolute number of students who did not have any access, although of a small percentage, was not trivial. Yet, the University did not seem to have provided sufficient IT facilities. The computer labs were reported to be inconveniently located, always overcrowded, and costly. At the time of this research, 20 classrooms in Foreign Languages College were fully equipped with computers and networks, but they were locked outside class times. Most students preferred to have self-study in open-access classrooms rather than in their dormitories and they did not have laptops, but when both labs and computerised classrooms were not readily available, to study regularly with materials based on computers would be indeed impracticable for them. This shortage therefore created

a moral dilemma for English teachers whether or not they should make CALL a compulsory component of the course. Interestingly, though, the students generally seemed to think that those without personal computers were at advantage rather than otherwise, because they did not miss out too much on academic activities without computers, whereas they were much less likely to be distracted to use computers for recreational uses. This implied that these students were not experiencing any extensive and integrated E-learning which would have required frequent use of computers for extended length of time.

The University's IT infrastructure was also responsible for the generally felt unsatisfactory computing services. Firstly, the University contracted out the entire network implementation and maintenance to a commercial company. The company imposed a very restrictive network infrastructure for the intranet, the national network and the Internet. Not only were students charged with tiered rates for using different networks, but also they had to manually change the network settings on their computers. These were reported to be major reasons that prevented students from accessing resources beyond the intranet unless absolutely necessary. The university network was also so unreliable that teachers often could not run NCE Online on the classroom machines. In addition, if a teacher wanted to access anything beyond the intranet from her/his classroom machine, s/he would have to pay for the costs personally. Little wonder that the most recurrent reason that students mentioned for the underuse of NCE Online was its unavailability. Admittedly, the technical design of NCE Online itself was not optimized enough to accommodate high user traffic or ideal usability, but the network hindrances had dampened most students' initial enthusiasm or patience. Secondly, the University did not have centralised IT provision and maintenance support. The ICT facilities in the English classrooms were of low performance specifications and constantly broken down, however, neither the University nor the Foreign Languages College provided any dedicated technical staff who would maintain the facilities regularly or offer prompt help when teachers and students encountered technical difficulties. This resulted in a situation very similar to Cambridge University in Barr and Gillespie's (2003) study (see Section 2.6 in Chapter 2).

On the whole, the majority of students had fairly sufficient private computer facilities, and both male and female students' attitudes toward computers and their computer competence were very favourable for E-learning in general. However, the external factors, such as the unstable network services and lack of technical support, had become major obstacles for more extensive CALL experiences.

8.3. Students' English Learning Needs and Teachers' Practice

To the students at this university, grammar was relatively the easiest area as it had been the focus of most school English teaching syllabi, whereas speaking and writing had been rated as the most difficult aspects because their College English course put much emphasis on the productive use of the language which was very different from their previous English education. In addition, vocabulary had become a 'bottleneck' in their speaking or writing activities as their reading scope had been expanded tremendously by the New College English textbooks, and therefore a large number of vocabulary was to be acquired within a relatively short time. Consequently, the students felt the difficulty of vocabulary acquisition had increased to the greatest extent. Not surprisingly, they were most interested in practices for vocabulary acquisition and improving their speaking. They preferred to have more face-to-face communication opportunities with native English-speakers, however, it is a well-recognised fact that there is no immersive English-speaking environment surrounding mainland Chinese learners (unlike Hong Kong or Singapore). Hence, these students expected the University to provide more courses taught by native English-speakers, but at the same time, they realised that one of the biggest barriers that prevented them from utilising communicative opportunities was their shyness to speak up in the foreign language. They therefore expected their teachers to create a conducive environment where they would feel comfortable to communicate with other people in English, while in reality, they found that their English classes still put much emphasis on grammar and translation and lacked individual involvement. On the other hand, their teachers reported that, although they were keen on teaching with a more communicative approach, they often had to fall back to the grammar-translation method for five main reasons:

1) many of them were taught by *their teachers* using the traditional methods, and it was difficult for them to instantly transform their classrooms into student-centred and communicative environments;
2) the large class sizes meant students could not get much teacher attention or chances to practice English;
3) when students were at low levels, they had great difficulty in conducting communicative activities with each other;
4) the university curriculum and the national English proficiency tests had a focus on learners' linguistic competence rather than performance, and teachers felt responsible for preparing their students for such assessments.
5) although teachers found that every year new students came with a higher and higher proficiency level and more students were displaying a willingness to speak up in class, the vast majority of learners still tended to stay in reticence and communicative activities were very difficult to take effect as intended. In such circumstances, teachers always had to fall back to, albeit reluctantly, a teacher-centred, question-and-answer format of teaching.

Clearly, these teachers could be described as being in a 'post-method condition', however, whether or not they were able to apply 'alternatives to method' in a principled pragmatism (see Section 2.2.3) is still a question. This mismatch between learners' needs and their teachers' approaches possibly contributed to the significant decrease in students' liking for English learning over an academic year. This might have made them even less motivated to use such extra learning resources as NCE Online which did not manifest any direct benefit for either exams or development of communicative fluency.

8.4. Students' Learning Styles, Expectations and NCE Online

Chinese learners' learning styles are key indicators that differentiate them from their western peers in terms of attitudes and behaviour toward E-learning. This study has found that these Chinese learners tended to be methodical, closure-oriented, passive and introverted, and they had good tolerance for ambiguities in learning. In other words, they would more or less manifest these characteristics in their study:

- They prefer sequential and linear presentation of information; they are well-organised in their learning routines, purposeful and strategic in tackling learning tasks.
- They welcome intellectual challenges; they are conscientious learners who are well-prepared to learn new knowledge or solve difficult problems independently.
- They are more concerned with the correctness rather than creativity; they aim to find *the* answer rather than various possibilities.
- When in a study group, they are willing to propose plans or solutions to a task, but they would prefer to listen and accept other people's suggestions or opinions, especially when they are different from their own.
- They do not like to speak out in class in fear of making mistakes or causing embarrassment or conflicts with others, therefore they would keep silent until the teacher calls upon them to speak.
- They would rather study on their own than in a group, unless the teacher requires them to work with other people. Even if they are working on a project as a group, they would prefer to work on a certain task individually rather than in a synergistic manner.
- They rely on the teacher's authority and instructions on what or how they learn.

It was found that different style dimensions played roles of different importance in influencing students' perceptions on the usefulness of general E-learning and CALL. First of all, flexibility (of study time, location, content and pace) and instant feedback were initially rated as the most helpful features of E-learning while collaborative and distance education opportunities were seen as the least helpful. However, after one year's CALL experience, the perceived usefulness of flexibility was outweighed by that of instant

feedback, and collaboration was rated the lowest. This favour for instant feedback was in good accordance with the finding that the more close-minded students valued instant feedback more since they were more concerned about obtaining correct answers. As this group of Chinese students generally showed an evident tendency of closure-mindedness, little wonder that the feature of instant feedback had gained the most recognition.

Secondly, these students regarded CMC with teachers as more helpful a feature of E-learning than that with peers. The interviews revealed that teachers were generally seen as authorities whom students did not want to 'bother' in person, and in reality teachers were not very often personally available either, whereas CMC tools would enable students to contact teachers more frequently and receive more personal feedback. They also felt 'more equal' when communicating with teachers through CMC. As mentioned in the literature review, the Chinese society is very hierarchical, and still seems to exert great influence on Chinese students' learning culture, which has fostered very teacher-centred and instruction-dependent learners.

Thirdly, the students were aware that face-to-face English communication opportunities, especially with native-speakers, were difficult to obtain in real life. Therefore, they acknowledged that CMC was probably the most promising and practical way to compensate for this. Nevertheless, it was found that the students' use of CMC tools such as forums or chatrooms decreased over time, and their perceived usefulness of CMC with peers for general study and English learning both declined. This seemed to indicate that CMC did not play an essential part in their E-learning for any subject, whereas it is usually an important element in E-learning environments in European universities. This was opposite to the researchers' expectations. As shown in this study, Chinese learners are generally introverted and reluctant to speak up in class, and it was hence expected that they would be in great favour of non-face-to-face, anonymous online communications. However, these students had hardly made use of NCE Online's 'Online Community' for communicative practice. Similar to what is indicated in the literature, a small number of students admitted they did not like this form of communication in that the typing did not feel as 'real' as speaking and the lack of social cues was unnatural for their communication. Nevertheless, the majority were comfortable with online communication, and some of them were even actively participating in some popular public English forums or chatrooms. The main reason why NCE Online's 'Online Community' did not appeal to them was that it did not provide any interesting and relevant themes for learners to discuss with each other. Neither did it have

any speciality to distinguish itself from other public CMC facilities. In a word, it did not attract enough interest from different learners to summon a uniting power which would create a 'community' for EFL practice purposes. Some students wished NCE Online could incorporate a voice chatting module that would create a more spontaneous environment for oral English practice. Moreover, they expected that their teachers also participate in 'Online Community' and provide more guidance, instructions and even assessment. This did not only show Chinese students' noticeable reliance on teacher control over their learning activities, but also the importance of learner contexts for the communicative methodology.

Although communicative activities were the most sought after in students' English learning, the most desirable feature students would like to have in NCE Online was a reservoir of up-to-date, authentic, quality language materials. They were conscious of the importance of sufficient meaningful and authentic linguistic input. Many mentioned that, although they could see an enormous body of English materials on the university network and the Internet, they felt at loss when coming to choose the most beneficial for their study. They expected to have a source of resources that would function akin to an online newspaper where a variety of contents were selected, edited and updated by their teachers all the time. NCE Online could invest more in time and labour to sift and present more resources to students, however, the most effective approach may be to train learners to 'drive' before turning them to 'the information highway'. In addition, students also wished to have more online exercises and mock tests as well as better referencing functionalities in the current CALL system. This again showed they were very methodical and conscientious learners who would consciously challenge themselves for higher achievement.

In general, this study has suggested that Chinese students are still not familiar with autonomous and social learning, and thus their traditional learning styles have been transferred into CALL environments. A CALL system should, therefore, also aim to foster autonomy, metacognitive skills and collaboration among Chinese learners, which is an essential factor that social constructivist CALL advocators have to take into account when designing materials for Chinese learners.

8.5. Students' Attitudes toward CALL and the University's CALL Development

The students' overall attitudes towards E-learning and CALL were positive. They generally believed E-learning should be an indispensable part of their study life, and felt that the use of computers had made their English study more interesting and promoted equality and confidence. They had used paper-based materials predominantly throughout their English learning history, however, after one academic year at university, they reduced use of paper-based materials considerably while CD-ROMs and the Internet attracted remarkable increase in usage. Apparently, printed materials were losing popularity when computers provided much easier and more flexible access to a wealth of resources at much lower costs. However, the students were also very affirmative that E-learning materials were not necessarily more effective than traditional learning materials. Paper-based materials were still comparatively the most frequently used medium because: a) they were convenient to carry to classrooms where students did self-study; b) they were more readily available from many sources; and c) they were more familiar and comfortable to use for those more traditional students. Paradoxically, digitalised resources were gaining more and more prominence almost for the same reasons: convenience, easy access and comfort (with use of *the Internet*). With the younger generations growing up with computers that execute almost every task in life and are becoming more mobile and portable, electronic materials are very likely to be accepted as more dominant learning media in the near future. Indeed, this tendency was already budding among these participants' choices of favourite English learning modes. At the beginning of their first year, they were still largely in favour of mostly face-to-face classroom learning, whereas by the end of the second year, nearly half of the second-year participants indicated a preference for more CALL than traditional classroom learning in their English study.

Nevertheless, the students' evaluation on the usefulness of E-learning noticeably declined after one academic year. In fact, their CALL system—NCE Online was ostensibly underused among both the first and second year students as the vast majority of them only accessed it several times throughout their study. Alarmingly, a number of students did not even know it existed. Apart from the aforementioned problem—the constant unavailability of the system due to network failures or system defects, two other predominant reasons were uncovered: a) NCE Online was not directly helpful with English exams/tests; b) limited time for the course. As NCE Online was not an integral part of the College English course, most

teachers were not utilising it regularly in or after class with their students. Therefore, it was not closely connected to the progress of the course or providing learners with substantial exercises or trainings which they might feel helpful for exams. Furthermore, students' learning done within NCE Online, if any, would not be assessed or counted towards their final assessment every semester. Being very purposeful learners, the Chinese students did not think spending time on NCE Online would be practically beneficial. Not to mention that they generally felt they had very limited time for English study. They admitted that, compared with their more difficult major courses, they normally made much less effort for the less demanding English course. Since using NCE Online was not required and was seen as a rather time-consuming task, most of them opted not to include it in their study routines.

Overall, although the students were clearly positive about CALL, there was also a strong sentiment that it is 'a necessary devil' (Fox *et al.* 1998, p.73). They wanted to have more of CALL in their study, but this could be, on the one hand, simply a result of the wide spread use of ICT in education in general, and on the other hand, a calling for more quality CALL materials designed according to *their* interests and learning agendas. In contrast, although the University made increasing investment in developing more and more E-learning materials, and enacted policies to encourage more involvement of E-learning, it failed to become truly integrated into the traditional teaching. Therefore, there appeared to be a tension between the apparent advantages of this form of learning on the one hand, and the various inevitable technological, time and resource constraints on the other (ibid).

8.6. Teacher's Attitudes toward CALL and the Current State of CALL

The majority of teachers showed positive attitudes toward the use of ICT in the College English course. They acknowledged the necessity of a CALL environment such as NCE Online, however, most of them only thought of NCE Online as a self-study environment for students after class, and did not explore the possibilities of incorporating it into their teaching in a wholesome way. This was partly due to the technical difficulties that the teachers often encountered and lack of support, which resulted in unfamiliarity with the functionalities of the system. Since the university curriculum did not include any requirement for E-learning before 2004 or offer a practical pedagogy for CALL integration, the teachers had little idea as to how exactly CALL may help with their teaching. Although the mandatory curriculum change in 2004 which required at least one third of teaching be conducted online saw an

increased use of NCE Online in class, the utilisation was still mostly sporadic and piecemeal. What was worth noticing was that the second-year students who experienced this change reported better liking and perceived usefulness of the system the more they used it. Nonetheless, the teachers were concerned that, since some students did not have PCs (especially the first-year students) and often they had to teach one class in a computerized classroom while another in a traditional classroom, the mandatory use of CALL may create inequality among students. Therefore, unless both the quantity and quality of the university computing facilities could be upgraded to accommodate the expanded E-learning implementation, an integrative CALL curriculum would be unrealistic.

Teachers' computing experiences and teaching objectives were closely linked to how they perceived NCE Online and what they expected from CALL. Since the majority of teachers were not regular users of online discussions or chatrooms, and neither had they themselves been taught by a communicative method, not only that hardly any teachers were using NCE Online's communication facility 'For Teachers' to have professional exchanges with their colleagues, but also almost no teachers had tried to organise any communicative activities in students' 'Online Community' module. This indicated that the teachers were either unaware of the potentiality of the online communication modules, or expected students to conduct communicative activities on their own whereas students were expecting *them* to initiate and monitor such activities. More importantly, there were also teachers who believed online communication was the embodiment of inappropriate language uses which would only undermine learners' linguistic competence, although many studies in the literature on network-based interactions have suggested otherwise. Moreover, the teachers showed an overwhelming tendency to expect a CALL environment to be an area where they could access lesson plans and extra teaching resources and a means to reduce their workload. The heavy workload became a major concern when the College lost nearly half of its teaching staff due to a university personnel policy. Therefore, CALL, as an innovation, was naturally (albeit unrealistically), expected to relieve this situation. What calls for attention is that a fair number of teachers were resistant to the University's promotion of E-learning as they feared it would take the place of their teaching. This position is actually rooted in the same belief as that of the teachers who expected CALL to considerably relieve their workload—they viewed CALL as an omnipotent teacher substitute. This 'fear-and-awe' reaction to ICT in teaching is a very common phenomenon before a technology has been 'normalized'[1].

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[1] See Section 2.4 in Chapter 2.

Further, teachers' perception and expectation of NCE Online revealed a gap between teacher needs and CALL designers' visions. For instance, ironically, the most important part of NCE Online—NCE (the e-version of the reading passages from the textbooks)—was viewed as helpful by neither teachers nor students, despite the fact that this module was the one that cost its development team the most time and effort. Apart from technical difficulties, the fact that NCE Online was not directly responsive to teachers' needs was probably a major reason for teachers' underuse of the system. Since the system was originally designed to primarily help with learners' self-study rather than teaching, the teachers were not actively exploring its use in their teaching. It was clear that teachers' attitudes and behaviour, among all other factors, largely influenced learners' behaviour towards the system (also see Piper *et al.* 1996). Therefore, without the teacher presence in the system, students were apparently not motivated to use it autonomously.

8.7. The Future of CALL in China

Research suggests that CALL can offer advantageous features to English learners in the following aspects:

- Self-access: CALL enables students to work anywhere, at anytime.
- Access to input, which can take many forms (linguistic/non-linguistic, textual/visual/sound) for learners to exploit, according to their needs.
- Instant access to reference sources (glossaries, concordances, specialized dictionaries).
- Opportunities for exploratory learning and risk-taking: students can use the computer as 'a means of exploring and playing with material' (Chapelle and Jamieson 1986, p.28).
- Opportunities for individualized learning processes and feedback.
- Interactivity: CALL materials can, to certain degree, be interactive with the requirements of the individual learner (Domingo 2002).
- Interconnectivity: with CMC, CALL emphasizes connecting individual learners and uniting them into communities engaged in project work and peer learning.

However, the status quo of CALL development in China at present is very similar to what Kenning and Kenning noted in 1990:

> There are several reasons for this general failure [of CALL] to make real inroads into language teaching practice on the ground. One is undoubtedly a chronic lack of hardware, ... there is still a great deal of ignorance as to the nature of computer technology and its potential as an educational aid... Another reason is a lack of suitable software. Despite the fact that, ... commercially available packages are beginning to appear, it is still true that many of those which do exist are of a stand-alone, one-off, type which are not always easy to integrate into existing courses (p.12).

NCE Online, as a forerunner of CALL in China, was almost the first one to have made great effort to realise the aforementioned potentials for an existing course. However, the process of the development have been subject to substantial difficulties, including lack of facilities and technical expertise, financial and logistical support from the University, and coordination from the network services which was managed by a privatised company whose commercial interests was often more important than the educational concerns. The effectiveness of the system was also affected by the lagging of a corresponding curriculum and pedagogy that would ensure both high-quality E-learning systems design and effective use of such systems in practice. NCE Online's growing curve has probably occurred or is going to occur to many other CALL endeavours in the country. Therefore, this study would like to make some tentative suggestions as to how to design a CALL environment to be more effective for Chinese students in higher education, although admittedly the study was far from in-depth enough to be conclusive. The following aspects emerged in this study as crucial factors that both teachers and CALL designers may have to bear in mind for successful realisation of CALL's potentiality.

Learner Characteristics

Matching CALL design with learners' learning needs and styles is by far the most important agenda which will largely determine learners' attitudes toward CALL and motivate them to utilise it more extensively and autonomously in the long run. To accommodate Chinese learners at present, it seems that a well-structured CALL environment with plenty of instantly-evaluated exercises which can be completed individually may be well-received. However, it should not overemphasize drills on grammar as it is relatively the easiest aspect and is not what university learners are most concerned about even though it does impose certain problems sometimes. On the contrary, grammatical knowledge can be better sensitized through the use of concordancers and corrective feedback while learners are doing other activities in the system. A separate, comprehensive grammar knowledgebase, as a reference tool, is also effective for Chinese learners. The reference and feedback linked to these exercises should be made as individualized as possible by innovative use of multimedia and NLP technologies[2] to improve learners' language accuracy (Chinese learners' major concern) and appropriateness (communicative teaching's ultimate goal). In contrast, vocabulary exercises should enjoy more importance, but preferably in more creative forms such as games and story creating. To achieve this, one institute's or one CALL design

[2] As discussed in Section 2.5.1 of Chapter 2.

team's effort is often insufficient. The ideal CALL environment should systematically utilise such resources on the Internet which are developed by a large number of TESOL practitioners around the world. To share and keep up-to-date with useful resources globally, CALL designers and teachers can take advantage of technologies such as blogging, RSS, and semantic web[3] which will inform and incorporate information and data from different sources on the Internet.

At present, most Chinese learners are more comfortable with linear presentation of information and sequential processes of learning, and they are still by and large reliant on teachers' instructions. Therefore, a CALL system should provide online placement tests which the learner can take to assess his/her own proficiency level and which give advice as to what content is appropriate for him/her. Thus, the learner can be guided through content designed for different levels step by step, much similar to what s/he would expect from the teacher. Nevertheless, this does not mean the strengths of the other E-learning features will not gain more recognition as Chinese education evolves. Educational environments are inevitably shaped by the economic, political and cultural development of a society, and learning style, as a socialized and malleable trait, changes under different cultures and at different stages of the learner's life. For instance, in the U.S. many educationists have realised that the rapid development of technologies has created a generation of learners, namely 'millennials', who manifest learning styles distinct from the previous generations (Brown 2001; Frand 2000; Oblinger 2003; Prensky 2001; Raines 2002). Millennials are young people born after 1982 and growing up with computers. They are found to be good at multi-tasking (e.g. writing an essay on the computer as well as listening to online radios and chatting with their friends on messengers), comfortable with learning through their own exploration into different resources (e.g. researching on a topic on the Internet), and happy to communicate and cooperate with people from completely different cultures whom they have never met (e.g. playing internet-based games with peers from different countries). In short, in learning, they are naturally expecting non-linear, multi-media presentation of knowledge, collaborative work and discovery-oriented tasks. As China is becoming more and more internationalised economically and culturally, Chinese learners may be changing into more like their American or European peers in the very near future. The pedagogical transformation from the traditional teacher-centred to the more learner-centred education is

[3] RSS, an acronym for Real Simple Syndicate, is a technology that can monitor and aggregate the updates from a specified website. Semantic web is a recent web innovation which aims to aggregate publicly available data from different websites according to users' needs.

presently taking place at different levels of education in the country. Especially, the prevalent approach to teaching English in Chinese higher education is the communicative method which emphasizes problem-based tasks, a facilitative and supportive role for the teacher, interpersonal interaction between students (and teachers), and learner autonomy (Fox 1993). Hence, learners will probably soon prefer learning environments that are less structured, less sequential, but more communicative and collaborative, and promotes more self-directed, explorative and reflective learning (also see Mitchell 2005). In addition, when guided or trained with appropriate learning activities, learners will adapt their styles very quickly, too. The younger learners may thus develop very different learning preferences from their older peers. For instance, at present, Chinese learners are generally introverted individual learners, but they are willing to collaborate or share ideas to certain extent. The publishing software such as weblogs or wikis[4] can be one of the most helpful technologies to foster social learning among Chinese learners in that, with these tools, they can create and publish *individually* but share and modify their own products *with others* without being directly face to face (see Harrison's (2006) study on using a vocabulary building wiki with Chinese students in a UK university). With more activities like this, in the long term, a social constructivist approach to learning may become a more dominant habit than their individual learning tradition. The amount of creation and presentation involved may also train them to be more explorative and reflective learners. Therefore, TESOL educators should not only design CALL for the Chinese learners *now*, but also aim to design for learners *of future*.

Effective online communication facilities and activities are certainly the most needed development CALL developers and language teachers should be concentrated on from now on as Chinese learners are in urgent need of an immersive language environment and substantial communicative opportunities. Although ideally learners would most like to have face-to-face communication with native-speakers (as shown in this study), it is not feasible for majority of Chinese learners in the mainland at present. Therefore, creating CMC-based communicative bridges between learners and *English-speakers* from different areas of the world will be the most economical and helpful means to meet this need. However, the literature review has shown that meaning negotiation with *peer learners* online is no less effective than that with native-speakers in terms of improving linguistic awareness. Hence, an online community mainly comprised of learners is also highly desirable. Often reported in research is 'the unexpected 'warmth' in the putatively 'cold' computer network

[4] As discussed in Section 2.5.2 of Chapter 2.

environment' (Hoffman 1996, p.67). The weakening of many social barriers in a virtual community may help Chinese learners to feel more at ease with obtaining help and advice from their teachers, higher-level peers, and academic authorities. Nonetheless, this study revealed that online communication was considered much less useful in students' English study than they initially expected, and learners hence showed little interest in utilising CMC tools for learning purposes. Therefore, to make an effective and thriving online community in a foreign language for Chinese learners, considerable amount of teacher intervention and guidance is expected to organise and regulate the communication and create meaningful purposes to motivate learners. In other words, teacher presence is indispensable in creating a virtual community for learners, and activities should be carefully designed to match their computing habits, proficiency levels, learning preferences and personal interests.

Nonetheless, despite the fact that Chinese learners are very positive about CALL in their language study and many research studies have shown CALL is genuinely helpful in many aspects, it is almost universally observed that majority of learners, regardless of learning styles, prefer the traditional face-to-face classroom delivery of teaching. They clearly believe that E-learning and classroom learning are complementary to each other within higher education, and they would still like to have a blended mode of learning with classroom being the dominant learning environment. It is widely acknowledged that up to date students still approach learning in much the same way as they might have prior to the introduction of technology (Concannon *et al.* 2005). Piper *et al.*'s (1996) study in Britain, for example, found that many students lacked the necessary technical, research and linguistic skills or appropriate learning strategies to make full use of CALL resources. In Fox *et al.*'s (1998) words, 'learners struggled to come to terms with' the CALL activities which developed both language and other transferable skills. Mitchell's (2002) research on Australian learners also revealed that nearly half of them were still lacking of the disposition and the skill readiness for self-directed learning—the basis of online learning. All this suggests a need for placing more emphasis on helping learners adjust to learning in an online environment, even in a hybrid mode of learning, which may be primarily facilitated through considerations about learning styles (Buch and Bartley 2002).

Teacher's Role

This research suggested that many Chinese TESOL teachers in higher education viewed CALL as either a replacement for human teachers or 'a paralleled universe' to their own

teaching world. Despite the University's reinforcement of hardware provision in classrooms and E-learning policies, there was still an apparent 'oversold and underused' status (Cuban 2002). No matter how powerful the software and hardware are, as Cuban (ibid) claims, they are often used in very limited ways to simply maintain rather than transform prevailing instructional practices. This is due to the fact that most teachers do not realise that E-learning calls for changes in both the teacher's and the learner' roles. With the help of CALL, a language teacher's role should turn from a knowledge authority to a learning facilitator and partner. This does not entail that teachers will have tremendously less work to do. To create a sustainable E-learning environment, the foremost condition is that the instructor must 'be there', transcend invisibility over the Internet and become 'a living participant in a shared learning environment' (Chepya 2005, p.10). Neither will the importance of the teacher diminish; on the contrary, it will be more clearly accentuated because the creativity of human teachers is still superior to any learning environments that machines can offer.

> Despite the apparent advantages of multimedia CALL, today's computer programs are not yet intelligent enough to be truly interactive. ... Computer programs that are capable of evaluating the appropriateness of a user's writing or speech, diagnosing learner difficulties, and intelligently choosing among a range of communicative response options are not expected to exist for quite some time (Kern and Warschauer 2000, p.11).

Hence, to claim that we can use technology to deliver effective language learning to large numbers of people without using teachers are 'erroneous and ultimately dishonest' (Moore 1993, p.56). Chinese language teachers should be made aware that there is no need to worship or fear CALL as an omnipotent entity that would deprive them of their jobs. Nor should they be resistant or defensive toward such innovations. On the contrary, they firstly need to recognise some apparent mismatches between their students and themselves:

1) Their students are 'digital natives' while most of them are 'digital immigrants'. Their students use technologies intuitively in a much wider range of ways than them. For instance, this research has clearly shown that students spend considerably more time on computers for recreational purposes while teachers only use them as tools for work purposes.
2) Their students want to improve their communicative performance most, whilst they, or rather exams, still try to train linguistic competence most time.
3) The majority of present Chinese learners are not accustomed to autonomous or collaborative learning, yet the prevalent English teaching method is the communicative approach which emphasizes these two learning strategies.

Secondly, teachers need to be provided with proper training to become more conscious of both the strengths and weaknesses of CALL and its integrative uses for their current teaching

practices. After all, perhaps every language teacher should remember that 'computers will not replace teachers, but teachers who use computers will replace teachers who do not' (Clifford 1998, p.5).

University's Support

As is shown in the literature and this study, the following university support are crucial:

- Dedicated technical and administrative staff
- Curricular integration
- Sufficient financial support
- Supportive policy-makers who give morale support and establish a platform for discussion and ICT-related policy making in order to create a friendly e-culture

There has often been a disparity between our announced instructional goals and the true capability of our courseware (Clifford 1998). This gap has much to do with the overall support from an educational institution which largely affects the quality and implementation of its E-learning resources. Most important of all, even if an institution has provided sufficient administrative and technical support, what is often lacking is an appropriate curriculum and pedagogy for the integration of CALL. It is constantly found in the literature that the computer is being used in an ad hoc, fragmented and disconnected fashion (e.g., Kern & Warschauer 2000; Zhao 2003). Many higher education institutions (including the university in this research) have seen CALL as a shortcut to teaching more students (the number of new students enrolled is increasing every year) with a reduced teaching staff, without realizing that such a conduct calls for innovations in the subject's curricular design and teaching methods, too (see Pearson 2001). Interestingly, both this study and the literature review confirm that voluntary use of E-learning is not conducive for improving either user attitudes or performance. Instead, research has often found that the mandatory users had significantly more positive attitudes than the optional users (e.g., Garland and Noyes 2004a). Therefore, only by making CALL an integral component of the curriculum will learners be motivated to conduct more extensive learning through online resources. Moreover, although we have to admit that it is inevitable that to certain degree technology will determine learning (Fletcher 1993; Levy 2000), the computer itself does not constitute a method, not any more than books or blackboards do, instead, technology can be bent to serve the particular purposes and beliefs of individual teachers and the contexts of their institutions (Warschauer 2000c). Barr and Gillespie (2003) assert that technology should be used to enhance already existing effective teaching methods for the benefit of learners and teachers. Similarly, Allum (2002, p.161) also suggests that 'CALL can be trusted to do some kinds of

work as well as a teacher, provided the methodology is sound', however, 'CALL should not be relied on solely to deliver materials over longer periods'. In addition, Fletcher (1993) points out that more people successfully learn language through mass market processes—short intense courses, audio cassette based rote learning programmes—than through properly structured courses in academic institutions over several years. Hence, the pedagogical strategies for CALL should also follow this formula—limited goals and simple processes.

In all, the most effective way to implement CALL in a Chinese university may be to make it a compulsory part of a full curriculum 'that are supported by available technologies instead of individual tools that are only used infrequently or as a supplement to a primarily print-material-based curriculum' (Zhao 2003, p.22). Also, this CALL environment should aim for training towards very clear and specific goals. In the interviewees' words from this research, it should have specialised focuses, rather than being all-inclusive without any specific, short-term training objectives. A corresponding pedagogy should therefore be developed with regards to Chinese learners' learning contexts, needs and preferences.

Furthermore, suffice it to say that developing excellent CALL courseware requires expertise in the language, instructional technology, and language pedagogy. This combination of skills may occasionally exist within one person, however, in most circumstances, effective E-learning software is the result of 'a team effort that brings together language, teaching, and programming skills' (Clifford 1998, p.7). The success of such teamwork is largely dependent on an institution's vision on E-learning and coordination of many different sectors.

8.8. Limitations of This Research and Future Research

This research covered a large number of samples and a wide range of topics. While it did discover several important issues concerning Chinese CALL development, it was not able to offer more in-depth perceptions on these issues due to several major limitations in the design and implementation of this research. The most critical one is that the researcher held some mistaken assumptions about the research context initially. Some preliminary interviews with teachers and students would have helped clarify the background information, identify the more relevant areas, and set up more focused investigations. Another major limitation was the instrument of learning styles. The researcher did not retest it with the same group of students in case they should still remember the questions and their answers only after one year. Therefore, even though this instrument yielded some very important findings which

seemed to have sufficient concurrent validity, there was no way of verifying the construct of the instrument. Moreover, the sampling procedure in this research was not exactly random in a strict sense. The participants mostly took part in the questionnaires or interviews under informed consent due to their teachers' requests. In the case of the online questionnaire, there were apparently many self-selecting participants who happened to be accessing NCE Online and voluntarily completed the questionnaire.

The researcher's experience with this study has pointed to a number of considerations for future research in this area. Firstly, research contexts are extremely important in understanding E-learning. Especially, in a hierarchical society like China, learners' behaviour is not only closely related to their immediate environment—the university, but also the overarching government policies and social rules. Therefore, careful investigations using informal interviews or observations should be utilised to obtain as much background information as possible. Evident in the discussions was that some aspects of learners and E-learning are not unique to China, but rather universal. Therefore, to identify the peculiarity of contexts becomes all the more important as to understand how to accommodate for both common and special characteristics. Secondly, to improve the validity of the current learning style instrument, it should be tested with learners from different Chinese universities, especially those specialised in social science and humanities disciplines where students may have very different thinking styles from peers from science and engineering oriented institutions. Thirdly, future research should also choose a cohort of participants who have experienced substantial CALL, conduct experimental studies to detect any changes in learners' learning styles, and thus ascertain whether learners adapt their styles to E-learning. Lastly, more in-depth interviews with learners are needed to further investigate the causes behind the tension between learners' favourable attitudes towards CALL and the underuse of it, and then shed further light on how specifically CALL designs can cater for Chinese learning styles.

Epilogue

Computer technologies have evolved into an age of mobile and pervasive computing (also known as ubiquitous computing). Needless to say, we are in a transitional period of technological innovation that will one day allow us to place computing infrastructure potentially everywhere, with the prospect of making it invisible to the users as well as intelligent and reactive to the users' individual differences and the environment (Editorial 2005, Interacting with Computers Vol.17). The main problem with CALL at present is that the pace of the evolving technology is much faster than the pace of linguistics in solving its own questions (Conescenti 1993) as well as the pace of SLA theorists in finding the appropriate CALL pedagogy. In this era of exploration and innovation, it is ultimately important to remember that CALL is not used for its own sake, or to justify the purchase of the equipment, but it is an integral part of the pedagogical strategies of the institution (Barr & Gillespie 2003) and is sensitive to learners' characteristics and needs.

References

Abouserie, R., Moss, D. and Barasi, S. (1992). Cognitive Style, Gender, Attitude toward Computer-Assisted Learning and Academic Achievement. *Educational Studies* **18**(2), 151-160.

Acton, G. S. (2001). "Five Major Dimensions of Personality." Retrieved 2005, From http://www.personalityresearch.org/bigfive.html.

Ådnanes, M. and Rønning, W. M. (1998). Computer-networks in Education --- a better way to learn? *Journal of Computer Assisted Learning* **14**(2), 148-157.

Ahmad, K., Corbett, G., Rogers, M. and Sussex, R. (1985). *Computers, Language Learning and Language Teaching*. Cambridge, London, New York, New Rochelle: Cambridge University Press.

Ahmed, M. (2002). A Note on Phrase Structure Analysis and Design Implication for ICALL. *Computer Assisted Language Learning* **15**(4), 423-433.

Ajzen, I. (1988). *Attitudes, Personality and Behaviour*. Milton Keynes: Open University Press.

Ajzen, I. and Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behaviour*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

Al-Khaldi, M. A. and Al-Jabri, I. M. (1998). The Relationship of Attitudes to Computer Utilization: new evidence from a developing nation. *Computers in Human Behavior* **14**(1), 23-42.

Allen, J. P. B. and Widdowson, H. G. (1979). Teaching the Communicative Use of English. In Brumfit, C. J. and Johnson, K. (Ed.), *The Communicative Approach to Language Teaching*. (pp. 122-142). London: Oxford University Press.

Allport, G. W. (1935). Attitudes. In Murchison, C. (Ed.), *A Handbook of Social Psychology*. (pp. 798-844). Worcester, Massachusetts: Clark University Press.

Allport, W. and Odbert, H. S. (1936). Trait-Names: A Psycho-lexical Study. *Psychological Monographs* **XLVII**(1), 1-171.

Allum, P. (2002). CALL and the Classroom: The Case for Comparative Research. *ReCALL* **14**(1), 146-166.

Anastasi, A. (1958). Heredity, Environment, and the Question 'How'. *Psychological Review* **65**(4), 197-208.

Anderson, J. (1993). Is A Communicative Approach Practical for Teaching English in China? Pros and Cons. *System* **21**(4), 471-480.

Arnau, R. C., Green, B. A., Rosen, D. H., Gleaves, D. H. and Melancon, J. G. (2003). Are Jungian Preferences Really Categorical? An Empirical Investigation Using Taxometric Analysis. *Personality and Individual Differences* **34**, 233-251.

Arnold, I., Ellis, N., Halliwell, J. and Marsh, D. (1997). Merlin - EFL on the Internet. In Grundy, P. (Ed.), *IATEFL 1997 Brighton Conference Selections*. (pp. 81-82). Whitstable, Kent: IATEFL.

Asher, J. J. (1969). The Total Physical Response to Second Language Learning. *The Modern Language Journal* **53**(1), 3-17.

Aust, R., Kelly, M. J. and Roby, W. (1993). The Use of Hyper-Reference and Conventional Dictionaries. *Educational Technology Research and Development* **41**, 63-73.

Bagozzi, R. P. (1978). The Construct Validity of the Affective, Behavioral, and Cognitive Components of Attitude by Analysis of Covariance Structures. *Multivariate Behavioral Research* **13**, 9-31.

Baker, D. (1997). Business English on the Web. In Grundy, P. (Ed.), *IATEFL 1997 Brighton Conference Selections*. (pp. 82-83). Whitstable, Kent: IATEFL.

Balram, S. and Dragićević, S. (2005). Attitudes toward Urban Green Spaces: Integrating Questionnaire Survey and Collaborative GIS Techniques to Improve Attitude Measurements. *Landscape and Urban Planning* **71**, 147-162.

Barr, D., Leakey, J. and Ranchoux, A. (2005). TOLD Like It Is! An Evaluation of an Integrated Oral Development Pilot Project. *Language Learning & Technology* **9**(3), 55-78.

Barr, J. D. and Gillespie, J. H. (2003). Creating a Computer-Based Language Learning Environment. *ReCALL* **15**(1), 68-78.

Batstone, R. (2002). Contexts of Engagement: A Discourse Perspective on 'Intake' and 'Pushed Output'. *System* **30**, 1-14.

Bax, S. (2003). CALL --- Past, Present and Future. *System* **31**(1), 13-28.

Beckers, J. J. and Schmidt, H. G. (2003). Computer Experience and Computer Anxiety. *Computers in Human Behavior* **19**(6), 785-797.

Belz, J. A. (2001). Institutional and Individual Dimensions of Transatlantic Group Work in Network-Based Language Teaching. *ReCALL* **13**(2), 213-231.

Bialystok, E. (1978). Language Skills & the Learners. In Blatchford, C. H. and Schachter, J. (Ed.), *On TESOL '78*. (pp. 224-231). Washington, D.C.: TESOL.

Biddulph, P. (1997). Interactive Exercises for Language Learning on the Internet. In Grundy, P. (Ed.), *IATEFL 1997 Brighton Conference Selections*. (pp. Kent: IATEFL.

Blackmore, J. (1996). "Learning Style Preferences." Retrieved 2002, From http://www.cyg.net/~jblackmo/diglib/styl.html.

Blake, R. (2000). Computer Mediated Communication: A Window on L2 Spanish Interlanguage. *Language Learning & Technology* **4**(1), 120-136.

Borras, I. and Lafayette, R. C. (1994). Effects of Multi-Media Courseware Subtitling on the Speaking Performance of College Students of French. *The Modern Language Journal* **78**(1), 61-75.

Brandl, K. (2002). Integrating Internet-Based Reading Materials into the Foreign Language Curriculum: From Teacher- to Student-Centred Approaches. *Language Learning & Technology* **6**(3), 87-107.

Breckler, S. J. (1984). Empirical Validation of Affect, Behavior, and Cognition as Distinct Components of Attitude. *Journal of Personality and Social Psychology* **47**(6), 1191-1205.

Brett, P. (1995). Multimedia for Listening Comprehension: The Design of a Multimedia-Based Resource for Developing Listening Skills. *System* **23**(1), 77-85.

Brock, D. B. and Sulsky, L. M. (1994). Attitudes toward Computers: construct validation and relations to computer use. *Journal of Organizational Behavior* **15**(1), 17-35.

Brooks, P. (1997). Using Presentation Software in Business English Training. In Grundy, P. (Ed.), *IATEFL 1997 Brighton Conference Selections*. (pp. 83-84). Whitstable, Kent: IATEFL.

Broudo, M., Hornby, K., Closson, K., Grams, G., Kelly, N., Kung, J., Parker, N., Rayment, C., Towle, A., Uyeno, D., Walsh, C. and Yong, P. (1999). A Longitudinal Report on the Results of the Computer Use and Needs Assessment Survey of Students in the Faculties of Medicine and Dentistry: 1995-1999, Division of Educational Support and Development and the Information Transmission and Management Committee.

Brown, S. and Baggaley, J. (2003). On-line Conferencing: The Next Generation? *Association for Learning Technologies (ALT) Conference*, Sheffield, UK.

Brown, S. J. (2001). Learning in the digital age. In Devlin, M., Larson, R. and Meyerson, J. (Ed.), *The Internet and the University: Forum 2001*. (pp. 65-91). Published as a joint project of the Forum for the Future of Higher Education and EDUCAUSE, 2002.

Brumfit, C. (1979). 'Communicative' Language Teaching: An Educational Perspective. In Brumfit, C. J. and Johnson, K. (Ed.), *The Communicative Approach to Language Teaching*. (pp. 183-191). London: Oxford University Press.

Bruton, A. and Samuda, V. (1980). Learner and Teacher Roles in the Treatment of Error in Group Work. *RELC Journal* **11**, 49-63.

Buch, K. and Bartley, S. (2002). Learning Style and Training Delivery Mode Preference. *Journal of Workplace Learning* **14**(1), 5-10.

Burnage, G. (2001). Approaches to University Network-based Language Learning. *ReCALL* **13**(2), 167-178.

Burston, J. (2003). Proving IT Works. *CALICO Journal* **20**(2), 219-226.

Busato, V. V., Prins, F. J., Elshout, J. J. and Hamaker, C. (1999). The Relation between Learning Styles, the Big Five Personality Traits and Achievement Motivation in Higher Education. *Personality and Individual Differences* **26**, 129-140.

Busato, V. V., Prins, F. J., Elshout, J. J. and Hamaker, C. (2000). Intellectual Ability, Learning Style, Personality, Achievement Motivation and Academic Success of Psychology Students in Higher Education. *Personality and Individual Differences* **29**, 1057-1068.

Cai, L. (2006). 学校文化对大学英语教师发展的影响. *江苏外语教学研究* **1**, 1-11.

Cambre, M. A. and Cook, D. L. (1987). Measurement and Remediation of Computer Anxiety. *Educational Technology* **27**(12), 15-20.

Canapero, M. (2004). Connecting, Motivating and Raising Awareness via WELL: Developing E-Learning Environments for Science Students. *ReCALL* **16**(2), 330-344.

Cano-Garcia, F. and Hughes, E. H. (2000). Learning and Thinking Styles: An Analysis of Their Interrelationship and Influence on Academic Achievement. *Educational Psychology* **20**(4), 413-430.

Carlson, J. G. (1985). Recent Assessments of the Myers-Briggs Type Indicator. *Journal of Personality Assessment* **49**, 356-365.

Carlyn, M. (1977). An Assessment of the Myers-Briggs Type Indicator. *Journal of Personality Assessment* **41**(5), 461-473.

Cartes-Enriquez, N., Rodriguez, M. I. S. and Letelier, R. Q. (2004). Electronic Texts or Learning through Textbooks: An Experimental Study. *ReCALL* **16**(2), 539-557.

Cartwright, D. S. (1979). *Theories and Models of Personality*. Dubuque, Iowa: W. C. Brown.

Cattell, J. M. (1945). The Description of Personality: Principles and Findings in a Factor Analysis. *American Journal of Psychology* **58**, 69-90.

Chamot, A. U. and O'Malley, J. M. (1994). Language Learner and Learning Strategies. In Ellis, N. C. (Ed.), *Implicit and Explicit Learning of Languages*. (pp. 371-392). London: Academic Press Harcourt Brace & Company, Publishers.

Chan, S. (1999). The Chinese Learner--A Question of Style. *Education and Training* **41**(6/7), 294-304.

Chapelle, C. A. and Jamieson, J. (1986). Computer-Assisted Language Learning as a Predictor of Success in Acquiring English as a Second Language. *TESOL Quarterly* **20**(1), 27-46.

Chapelle, C. A., Jamieson, J. and Park, Y. (1996). Second Language Classroom Research Traditions: How Does CALL Fit? In Pennington, M. C. (Ed.), *The Power of CALL*. (pp. 33-54). Houston, Tex: Athelstan.

Chen, J. F. (1996). CALL Is Not A Hammer and Not Every Teaching Problem Is A Nail: Changing Expectations of Computers in the Classroom. *The Internet TESL Journal* **II**(7).

Chen, L., Tokuda, N. and Hou, P. (2005). A Table Look-Up Parser in Online ILTS Applications. *Computer Assisted Language Learning* **18**(1&2), 49-62.

Chepya, P. (2005). E-Personality: The Fusion of IT and Pedagogical Technique. *EDUCAUSE Quarterly* **28**(3), 9-10.

Chomsky, N. (1965). *Aspects of the Theory of Syntax*. Cambridge, Massachusetts: The M.I.T. Press.

Chomsky, N. (1969). Linguistics and Philosophy. In Hook, S. (Ed.), *Language and Philosophy: A Symposium*. (pp. 51-94). New York: New York University Press.

Clarke, M. (1982). On Bandwagons, Tyranny, and Common Sense. *TESOL Quarterly* **16**(4), 437-449.

Clifford, R. (1998). Mirror, Mirror, on the Wall: Reflections on Computer Assisted Language Learning. *CALICO Journal* **16**(1), 1-10.

Cobb, T. and Stevens, V. (1996). A Principled Consideration of Computers and Reading in a Second Language. In Pennington, M. C. (Ed.), *The Power of CALL*. (pp. 115-136). Houston, Tex: Athelstan.

Coghlan, M. (2004). "Finding Your Voice Online - An Inquiry into the Use of Online Voice Applications in Higher Education." From http://www.elearn.wa.edu.au/kt/edition05/download/Coghlan.pdf.

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences (2nd Edition)*. Hillsdale, N.J. Hove: Lawrence Erlbaum.

Coleman, J. A. (2005). CALL from the Margins: Effective Dissemination of CALL Research and Good Practices. *ReCALL* **17**(1), 18-31.

Colley, A., M., Gale, M. T. and Harris, T. A. (1994). Effects of Gender Role Identity and Experience on Computer Attitude Components. *Journal of Educational Computing Research* **10**(2), 129-137.

Concannon, F., Flynn, A. and Campbell, M. (2005). What Campus-Based Students Think about the Quality and Benefits of E-Learning. *British Journal of Educational Technology* **36**(3), 501-512.

Conescenti, M. (1993). Keynote Speech. *LINGUA DELTA: Foreign Language Learning and the Use of New Technologies Conference Proceedings*, London: Commission of The European Communities.

Coniam, D. (1999). Voice Recognition Software Accuracy with Second Language Speakers of English. *System* **27**, 49-64.

Cook, V. J. (1989). *Chomsky's Universal Grammar: An Introduction*. Oxford, Massachusetts: Basil Blackwell.

Cornwell, J. M. and Manfredo, P. A. (1994). Kolb's Learning Style Theory Revisited. *Educational and Psychological Measurement* **54**(2), 317-327.

Cornwell, J. M., Manfredo, P. A. and Dunlap, W. P. (1991). Factor Analysis of the 1985 Revision of Kolb's Learning Style Inventory. *Educational and Psychological Measurement* **51**, 455-462.

Costa, P. T. J. and McCrae, R. R. (1997). Longitudinal Stability of Adult Personality. In Hogan, R., Johnson, J. and Briggs, S. (Ed.), *Handbook of Personality Psychology*. (pp. 269-292). London: Academic Press.

Cowan, D. A. (1989). An Alternative to the Dichotomous Interpretation of Jung's Psychological Functions: Developing More Sensitive Measurement Technology. *Journal of Personality Assessment* **53**, 459-471.

Craik, F. I. M. and Lockhart, R. S. (1972). Levels of Processing: A Framework for Memory Research. *Journal of Verbal Learning and Verbal Behavior* **11**, 671-684.

Crawford, P. and Kevill, R. (1999). "Computer Assisted Learning -- A Formative Approach." From http://auc.uow.edu.au/conf/conf00/papers/AUC2000_Crawford.pdf.

Cuban, L. (2002). *Oversold and Underused: Computers in the Classroom*. Cambridge, Massachusetts; London, England: Harvard University Press.

Curran, C. A. (1972). *Counseling-Learning: A Whole-Person Model for Education*. New York: Grune and Stratton.

Curry, L. (1991). Patterns of Learning Style Across Selected Medical Specialties. *Educational Psychology* **11**(3), 247-278.

Dahlqvist, P. and Ramberg, R. (1999). "Opinions Towards and Expectations on Computer Based Learning Tools." From http://www.dsv.su.se/~patricd/Publications/ICCE-99.PDF.

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly* **13**(3), 319-339.

Debski, R. (1997). Beyond the Screen: situating technology-mediated language learning. *ON-CALL* **11**(2).

Dewhurst, D. G., Macleod, H. A. and Norris, T. A. M. (2000). Independent Student Learning Aided by Computers: an Acceptable Alternative to Lectures? *Computers & Education* **35**, 223-241.

Domingo, N. (2002). "Computer Assisted Language Learning: increase of freedom or submission to machines?" From The Internet: http://www.terra.es/personal/nostat/.

Dondi, C., Mancinelli, E., Bols, A., Bandere, Z., Almqvist, J., Nilsson, T., Erceg, V., Haywood, J., Haywood, D., Kugemann, W., Tenckhoff, A., Lowyck, J., Proost, K., Leonard, R., Drugg, K., Tenhonen, P. and Gonzalvez, N. C. (2004). SPOT: Students' Perspectives on Technology in Teaching and Learning in European Universities--Participation and Learning of University Students, The SOCRATES Programme, European Commission.

Dong, W. and Fu, L. (2004). 对建构注意指导下大学英语多媒体网络课堂的调查. *外语界 (Foreign Language World)* **100**(2), 8-13.

Doob, L. W. (1947). The Behavior of Attitudes. *Psychological Review* **54**, 135-156.

Doughty, C. and Varela, E. (1998). Communicative Focus on Form. In Doughty, C. and Williams, J. (Ed.), *Focus on Form in Classroom SLA*. (pp. 114-138). Cambridge: Cambridge University Press.

Draper, S. W. (2003). "Learning Styles (notes)." Retrieved 2003, From http://www.psy.gla.ac.uk.

Duff, A., Boyle, E., Dunleavy, K. and Ferguson, J. (2004). The relationship between personality, approach to learning and academic performance. *Personality and Individual Differences* **36**, 1907-1920.

Dulay, H. and Burt, M. (1977). Remarks on Creativity in Language Acquisition. In Burt, M., Dulay, H. and Finocchiaro, M. (Ed.), *Viewpoints on English as a Second Language*. (pp. 95-126). New York: Regents.

Dunn, R., Griggs, S. A., Olson, J. and Beasly, M. (1995). A Meta-Analytic Validation of the Dunn and Dunn Model of Learning Style Preferences. *Journal of Educational Research* **88**(6), 353-362.

Eagly, A. H. and Chaiken, S. (1993). *The Psychology of Attitudes*. Orlando, Florida: Harcourt Brace Jovanovich College Publishers.

Editorial (2005). The Social Implications of Emerging Technologies. *Interacting with Computers* **17**, 475-483.

Ehrman, M. E. and Oxford, R. L. (1989). Effects of Sex Differences, Career Choice, and Psychological Type on Adults' Language Learning Strategies. *Modern Language Journal* **73**(1), 1-13.

Ellis, R. (1989a). Are Classroom and Naturalistic Language Acquisition the Same? A Study of the Classroom Acquisition of German Word Order Rules. *Studies in Second Language Acquisition* **11**(3), 305-328.

Ellis, R. (1989b). Classroom Learning Styles and Their Effect on Second Language Acquisition: A Study of Two Learners. *System* **17**(2), 249-262.

Ellis, R. (1994). *The Study of Second Language Acquisition*. Oxford: Oxford University Press.

Ellis, R. (1995). Appraising Second Language Acquisition Theory in Relation to Language Pedagogy. In Cook, G. and Seidlhofer, B. (Ed.), *Principle & Practice in Applied Linguistics: Studies in Honour of H. G. Widdowson*. (pp. 73-89). Oxford: Oxford University Press.

Elman, J. L. (1996). *Rethinking Innateness: A Connectionist Perspective on Development*. Cambridge, Mass.; London: MIT Press.

Entwistle, N. (1972). Personality and Academic Attainment. *British Journal of Educational Psychology* **62**, 375-380.

Entwistle, N., McCune, V. and Walker, P. (2001). Conceptions, Styles, and Approaches within Higher Education: Analytical Abstractions and Everyday Experience. In Sternberg, R. J. and Zhang, L.-f. (Ed.), *Perspectives on Thinking, Learning and Cognitive Styles*. (pp. 103-136). Mahwah, NJ; London: Lawrence Erlbaum Associates, Publishers.

Esch, E. and Zähner, C. (2000). The Contribution of Information and Communication Technology (ICT) to Language Learning Environments or the Mystery of the Secret Agent. *ReCALL* **12**(1), 5-18.

Eysenck, H. J. (1950). *Dimensions of Personality*. London: Routledge & Kegan Paul Limited.

Eysenck, H. J. (1970). *The Biological Basis of Personality*. Springfield, Illinois: Charles C. Thomas Publisher.

Eysenck, H. J. (1990). Biological Dimensions of Personality. In Pervin, L. A. (Ed.), *Handbook of Personality: Theory and Research*. (pp. 244-276). New York/London: The Guilford Press.

Eysenck, H. J. and **Eysenck,** S. B. G. (1976). *Psychoticism as a dimension of personality*. London: Hodder and Stoughton.

Farrell, A. D., Cuseo-Ott, L. and Fenerty, M. (1988). Development and Evaluation of a Scale for Measuring Practitioner' s Attitudes toward Computer Applications. *Computers in Human Behavior* **4**, 207-220.

Felix, U. (2001). The Web's Potential for Language Learning: The Student's Perspective. *ReCALL* **13**(1), 47-58.

Felix, U. (2005). E-Learning Pedagogy in the Third Millennium: The Need for Combining Social and Cognitive Constructivist Approaches. *ReCALL* **17**(1), 85-100.

Ferrell, B. G. (1983). A Factor Analytic Comparison of Four Learning-Styles Instruments. *Journal of Educational Psychology* **75**(1), 33-39.

Festinger, L. (1957). *A Theory of Cognitive Dissonance*. Evanston, Ill.: Row, Peterson.

Finocchiaro, M. and Brumfit, C. (1983). *The Functional-Notional Approach: From Theory to Practice*. New York: Oxford University Press.

Fishbein, M. (1963). An Investigation of the Relationships between Beliefs about an Object and the Attitude toward that Object. *Human Relations* **16**(3), 233-239.

Fishbein, M. (1966). The Relationships between Beliefs, Attitudes, and Behavior. In Feldman, S. (Ed.), *Cognitive Consistency: Motivational Antecedents and Behavioral Consequents*. (pp. 199-223). New York and London: Academic Press.

Fishbein, M. and Ajzen, I. (1975). *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. Reading, MA: Addison-Wesley.

Fishbein, M. and Raven, B. H. (1962). The AB Scales: An Operational Definition of Belief and Attitude. *Human Relations* **15**(1), 35-44.

Fiske, D. W. (1949). Consistency of the Factorial Structures of Personality Ratings from Different Sources. *Journal of Abnormal and Social Psychology* **44**, 329-344.

Fletcher, D. (1993). Prepared Replies to Keynote Address--From Technologies Point of View, Never Mind the Technology: Will It Help Make Learning Better, Quicker, Cheaper? *LINGUA DELTA: Foreign Language Learning and the Use of New Technologies Conference Proceedings*, London: Commission of The European Communities.

Ford, N. and Chen, S. Y. (2001). Matching/Mismatching Revisited: An Empirical Study of Learning and Teaching Styles. *British Journal of Educational Technology* **32**(1), 5-22.

Fox, J. (1993). EC Research in Language Learning and IT. *Journal of Computer Assisted Learning* **9**(2), 100-106.

Fox, M., Holder, J. D. and Weaver, M. (1998). Connections with Directed Learning: Perceptions and Practice in Multimedia and Internet-Based Language Activities. In Cameron, K. (Ed.), *Multimedia CALL: Theory and Practice.* (pp. 65-80). Exeter: Elm Bank.

Francis, L. J. (1993). Measuring Attitude toward Computers among Undergraduate College Students: the Affective Domain. *Computers & Education* **20**(3), 251-255.

Francis, L. J. and Evans, T. E. (1995). The Reliability and Validity of the Bath County Computer Attitude Scale. *Journal of Educational Computing Research* **12**, 135-146.

Frand, J., L. (2000). The Information-Age Mindset: Changes in Students and Implications for Higher Education. *Educause Review* **35**(September/October), 15-24.

Fries, C. C. (1945). *Teaching and Learning English as A Foreign Language*. Ann Arbor: University of Michigan Press.

Friesner, T. and Hart, M. (2004). A Cultural Analysis of e-Learning for China. *Electronic Journal on e-Learning* **2**(1), 81-88.

Furnham, A. (1992). Personality and Learning Style: A Study of Three Instruments. *Personality and Individual Differences* **13**(4), 429-438.

Furnham, A. (1996). The Big Five versus the Big Four: the Relationship between the Myers-Briggs Type Indicator (MBTI) and NEO_PI Factor Model of Personality. *Personality and Individual Differences* **21**(2), 303-307.

Furnham, A., Jackson, C. J. and Miller, T. (1999). Personality, Learning Style and Work Performance. *Personality and Individual Differences* **27**, 1113-1122.

Galanouli, D. and McNair, V. (2001). Students' Perceptions of ICT-related Support in Teaching Placements. *Journal of Computer Assisted Learning* **17**(4), 396-408.

Gao, X. (2006). Understanding Changes in Chinese Students' Uses of Learning Strategies in China and Britain: A Socio-Cultural Re-interpretation. *System* **34**, 55-67.

Gardner, J., Fulton, J. and Best, J. (1993). Trends and Tensions in IT Policy in Universities. *Higher Education Quarterly* **47**(3), 259-273.

Garland, K. and Noyes, J. (2004a). The effects of mandatory and optional use on students' ratings of a computer-based learning package. *British Journal of Educational Technology* **35**(3), 263-273.

Garland, K. and Noyes, J. (2005). Attitudes and Confidence towards Computers and Books as Learning Tools: a Cross-Sectional Study of Student Cohorts. *British Journal of Educational Technology* **36**(1), 85-91.

Garland, K. J. and Noyes, J. M. (2004b). Computer Experience: A Poor Predictor of Computer Attitudes. *Computers in Human Behavior* **20**, 823-840.

Gass, S. M. and Torres, M. J. A. (2005). ATTENTION WHEN? An Investigation of the Ordering Effect of Input and Interaction. *Studies in Second Language Acquisition* **27**, 1-31.

Geiger, M. A., Boyle, E. J. and Pinto, J. K. (1993). An Examination of Ipsative and Normative Versions of Kolb's Revised Learning Style Inventory. *Educational and Psychological Measurement* **53**, 717-726.

Genesee, F. (2000). "Brain Research: Implications for Second Language Learning."

Gibson, J. L., Ivancevich, J. M. and Donnelly, J. H. (1979). *Organizations: behavior, structure, processes*. Dallas, Texas: Business Publications, INC.

Gieve, S. and Clark, R. (2005). 'The Chinese Approach to Learning': Cultural Trait or Situated Responses? The Case of a Self-Directed Learning Programme. *System* **33**, 261-276.

Gillespie, J. H. and Barr, J. D. (2002). Resistance, Reluctance and Radicalism: A Study of Staff Reaction to the Adoption of CALL/C&IT in Modern Languages Departments. *ReCALL* **14**(1), 120-132.

Girelli, S. A. and Stake, J. E. (1993). Bipolarity in Jungian Type Theory and the Myers-Briggs Type Indicator. *Journal of Personality Assessment* **60**, 290-301.

Godwin-Jones, R. (2003). Blogs and Wikis: Environments for On-line Collaboration. *Language Learning & Technology* **7**(2), 12-16.

Godwin-Jones, R. (2005). Skype and Podcasting: Disruptive Technologies for Language Learning. *Language Learning & Technology* **9**(3), 9-12.

Goh, I. S. H. (1993). A Low-cost Speech Teaching Aid for Teaching English to Speakers of Other Languges. *System* **21**(3), 349-357.

Goldberg, L. R. (1981). Language and Individual Differences: The Search for Universals in Personality Lexicons. In Wheeler, L. (Ed.), *Review of Personality and Social Psychology Vol. 2.* (pp. 141-165). Beverly Hills, CA: Sage.

González-Bueno, M. (1998). The Effects of Electronic Mail on Spanish L2 Discourse. *Language Learning & Technology* **1**(2), 55-70.

Goodyear, P., Asensio, M., Jones, C., Hodgson, V. and Steeples, C. (2001). Relationships between Conceptions of Learning, Approaches to Study and Students' Judgements about the Value of Their Experiences of Networked Learning. *Internet and Higher Education* **4**, 31-44.

Grandjean-Levy, A. (1997). "Caught in the Net: Technology and Teaching Language Courses." Retrieved 2001, From http://ts.mivu.org/default.asp?show=article&id=530.

Green, B. F. (1954). Attitude Measurement. In Lindzey, G. (Ed.), *Handbook of Social Psychology (1st Edition) Vol. 1.* (pp. 335-369). Reading, Massachusetts: Addison-Wesley Publishing Company, Inc.

Greenwald, A. G. (1968). On Defining Attitude and Attitude Theory. In Greenwald, A. G., Brock, T. C. and Ostrom, T. M. (Ed.), *Psychological Foundations of Attitudes*. (pp. 361-388). New York and London: Academic Press.

Gregg, K. R. (1984). Krashen's Monitor and Occam's Razor. *Applied Linguistics* **5**(2), 79-100.

Gregorc, A. F. (1979). Learning/Teaching Styles: Potent Forces Behind Them. *Educational Leadership* **36**(4), 234-236.

Gregorc, A. F. (1984). Styles as a Symptom: a Phenomenological Perspective. *Theory into Practice* **23**(1), 51-55.

Grigorenko, E. and Sternberg, R. J. (1995). Thinking Styles. In Saklofske, H. D. and Zeidner, M. (Ed.), *International Handbook of Personality and Intelligence: Perspectives on Individual Differences*. (pp. 205-229). New York: Plenum Press.

Gunawardena, C. N. (1995). Social Presence Theory and Implications for Interaction and Collaborative Learning in Computer Conferences. *International Journal of Educational Telecommunications* **1**(2/3), 147-166.

Gunn, C., French, S., Macleod, H. A., McSporran, M. and Conole, G. (2002). Gender Issues in Computer-Supported Learning. *ALT-J* **10**(1), 32-44.

Gunn, C., McSporran, M., Macleod, H. A. and French, S. (2003). Dominant or Different? Gender Issues in Computer Supported Learning. *JALN* **7**(1), 14-30.

Hagler, P. and Knowlton, J. (1987). Invalid Implicit Assumption in CBI Comparison Research. *Journal of Computer-Based Instruction* **14**(3), 84-88.

Hammond, N., Gardner, N., Heath, S., Kibby, M., Mayes, T., McAleese, R., Mullings, C. and Trapp, A. (1992). Blocks to the Effective Use of Information Technology in Higher Education. *Computers & Education* **18**(1-3), 155-162.

Hampel, R. (2003). Theoretical Perspectives and New Practices in Audio-Graphic Conferencing for Language Learning. *ReCALL* **15**(1), 21-36.

Harding, J., Kutner, B., Proshansky, H. and Chein, I. (1954). Prejudice and Ethnic Relations. In Lindzey, G. (Ed.), *Handbook of Social Psychology (1st Edition) Vol. 2*. (pp. 1021-1061). Reading, Mass.: Addison-Wesley Publishing Company, Inc.

Harrison, T. (2006). Wikis and Autonomy. *Learning Technologies in the Language Classroom: A Step Closer to the Future*, Cyprus.

Hart, G. (1995). "Learning Styles and Hypertext: Exploring User Attitudes." From http://www.ascilite.org.au/conferences/melbourne95/smtu/papers/hart.pdf.

Hartman, J., Moskal, P. and Dziuban, C. (2005). "Preparing the Academy of Today for the Learner of Tomorrow." Educating the Net Generation, From http://www.educause.edu/educatingthenetgen/.

Harvey, R. J., Murry, W. D. and Stamoulis, D. T. (1995). Unresolved Issues in the Dimensionality of the Myers-Briggs Type Indicator. *Educational and Psychological Measurement* **55**, 535-544.

Hatch, E. and Wagner-Gough, J. (1976). Explaining Sequence and Variation in Second Language Acquisition. In Brown, H. D. (Ed.), *Papers in Second Language Acquisition: Proceedings of the Sixth Annual Conference on Applied Linguistics*. (pp. 39-57): Research Club in Language Learning.

Hawk, S. R. (1989). Locus of Control and Computer Attitude: The Effect of User Involvement. *Computers in Human Behavior* **5**, 199-206.

Hawkins, B. L., Rudy, J. A. and Madsen, J. W. (2003). "EDUCAUSE Core Data Service: 2003 Summary Report." Retrieved 2005, From http://www.educause.edu/ir/library/pdf/pub8001e.pdf.

Haywood, J., MacLeod, H. A., Haywood, D., Mogey, N. and Alexander, W. (2004). Student Views of E-Learning (Report), SCROLLA, The University of Edinburgh.

Heift, T. (2001). Error-specific and individualised feedback in a web-based language tutoring system: Do they read it? *ReCALL* **13**(1), 99-109.

Heift, T. (2005). Inspectable Learner Reports for Web-Based Language Learning. *ReCALL* **17**(1), 32-46.

Heinssen, R. K., Glass, C. R. and Knight, L. A. (1987). Assessing Computer Anxiety: Development and Validation of the Computer Anxiety Rating Scale. *Computers in Human Behavior* **3**, 49-59.

Henderson, R., Deane, F., Barrelle, K. and Mahar, D. (1995). Computer Anxiety: Correlates, Norms and Problem Definition in Health Care and Banking Employees Using the Computer Attitude Scale. *Interacting with Computers* **7**(2), 181-193.

Hew, S.-H. and Ohki, M. (2001). A Study on the Effectiveness and Usefulness of Animated Graphical Annotation in Japanese CALL. *ReCALL* **13**(2), 245-260.

Higashi, A. M. (1997). Using Internet for Communicative Practice. In Grundy, P. (Ed.), *IATEFL 1997 Brighton Conference Selections*. (pp. 78-79). Whitstable, Kent: IATEFL.

Hincks, R. (2003). Speech Technologies for Pronunciation Feedback and Evaluation. *ReCALL* **15**(1), 3-20.

Hinton, P. R. (1995). *Statistics explained: A guide for social science students*. London and New York: Routledge.

Hirscheim, R. A., Smithson, S. C. and Whitehouse, D. E. (1988). A Survey of Microcomputer Use in the Humanities and Social Sciences: A UK University Study. *Education & Computing* **4**, 77-89.

Ho, J. and Crookall, D. (1995). Breaking with Chinese Cultural Traditions: Learner Autonomy in English Language Learning. *System* **23**(2), 235-243.

Hoffman, R. (1996). Computer Networks: Webs of Communication for Language Teaching. In Pennington, M. C. (Ed.), *The Power of CALL*. (pp. 57-77). Houston, Tex: Athelstan.

Holliday, A. R. (1997). Six Lessons: Cultural Continuity in Communicative Language Teaching. *Language Teaching Research* **1**(3), 212-238.

Holmes, B. (1998). Initial Perceptions of CALL by Japanese University Students. *Computer Assisted Language Learning* **11**(4), 397-409.

Honey, P. (2001). "Learning Styles--The Key to Personalised e-Learning?" Retrieved 2003, From http://www.peterhoney.com/article/66.

Honey, P. and Mumford, A. (1986). *The Manual of Learning Styles*. Maidenhead: Peter Honey.

Hsu, J. F., Chappelle, C. and Thompson, A. (1993). Exploratory Learning Environments: What are They and What do Students Explore? *Journal of Educational Computing Research* **9**, 1-15.

Huang, J. and Shao, Y. (2001). 大学英语教学和教师情况调查分析. *中国大学教学(China University Teaching)* **6**, 20-22&25.

Huang, J. and Shao, Y. (2002). 扩招后的大学英语师资队伍建设. *河北职业技术师范学院学报（社会科学版）(Journal of Hebei Vocation-Technical Teacher University (Social Science))* **1**(1), 62-66.

Hubbard, P. L. (1996). Elements of CALL Methodology: Development, Evaluation, and Implementation. In Pennington, M. C. (Ed.), *The Power of CALL*. (pp. 15-32). Houston, Tex: Athelstan.

Hurd, S., Beaven, T. and Ortega, A. (2001). Developing Autonomy in a Distance Language Learning Context: Issues and Dilemmas for Course Writers. *System* **29**(3), 341-355.

Huskinson, T. L. H. and Haddock, G. (2004). Individual Differences in Attitude Structure: Variance in the Chronic Reliance on Affective and Cognitive Information. *Journal of Experimental Social Psychology* **40**, 82-90.

Hutchings, G. A., Hall, W. and Colbourn, C. J. (1993). Patterns of Students' Interactions with a Hypermedia System. *Interacting with Computers* **5**(3), 295-313.

Igbaria, M. (1993). User Acceptance of Microcomputer Technology: an empirical test. *OMEGA International Journal of Management Science* **21**(1), 73-90.

Insko, C. A. and Schopler, J. (1967). Triadic Consistency: A Statement of Affective-Cognitive-Conative Consistency. *Psychological Review* **74**(5), 361-376.

Issroff, K. and Eisenstadt, M. (1997). Evaluating a Virtual Summer School. *Journal of Computer Assisted Learning* **13**(4), 245-252.

Jackson, C. J. and Lawty-Jones, M. (1996). Explaining the Overlap between Personality and Learning Styles. *Personality and Individual Differences* **20**, 293-300.

Jacobson, C. M. (1993). Cognitive Styles of Creativity: Relations of Scores on the Kirton Adaption-Innovation Inventory and the Myers-Briggs Type Indicator. *Psychological Reports* **72**(3), 1131-1138.

Jia, G. (2003). 现代网络技术与大学英语教学模式改革----基于校园网的教学模式设计与试验研究. *外语界 (Foreign Language World)* **98**(6), 22-29.

Jin, L. and Cortazzi, M. (1993). Cultural Orientation and Academic Language Use. In Graddol, D., Thompson, L. and Byram, M. (Ed.), *Language and Culture*. (pp. 84-97). Clevedon: Multilingual Matters.

John, O. P. (1990). The 'Big Five' Factor Taxonomy: Dimensions of Personality in the Natural Language and in Questionnaires. In Pervin, L. A. (Ed.), *Handbook of Personality: Theory and Research*. (pp. 66-100). New York/London: The Guilford Press.

Johnson, D. A. and Saunders, D. R. (1990). Confirmatory Factor Analysis of the Myers-Briggs Type Indicator -- Expanded Analysis Report. *Educational and Psychological Measurement* **50**, 561-571.

Jones, A., Scanlon, E., Tosunoglu, C., Morris, E., Ross, S., Butcher, P. and Greenberg, J. (1999). Contexts for Evaluating Educational Software. *Interacting with Computers* **11**, 499-516.

Jones, J. F. (2001). CALL and the Responsibilities of Teachers and Administrators. *ELT Journal* **55**(4), 360-367.

Jones, S. P. a. (2002). "The Internet Goes to College: How Students Are Living in the Future with Today's Technology." Retrieved 2005, From http://www.pewinternet.org/.

Jones, T. and Clarke, V. A. (1995). Diversity as a Determinant of Attitudes: A Possible Explanation of the Apparent Advantage of Single-Sex Settings. *Journal of Educational Computing Research* **12**(1), 51-64.

Jung, U. O. H. (2005a). CALL: Past, Present and Future--A Bibliometric Approach. *ReCALL* **17**(1), 4-17.

Jung, U. O. H. (2005b). An International Bibliography of Computer-Assisted Language Learning: Sixth Instalment. *System* **33**, 135-185.

Kaminski, K., Seel, P. and Cullen, K. (2003). Technology Literate Students? *EDUCAUSE QUARTERLY* **26**(3), 34-40.

Karrer, U. (1991). Impacts of Courseware and Student Characteristics on Learning Achievement: results of an empirical study. *Journal of Computer Assisted Learning* **7**(1), 18-33.

Katz, N. (1986). Construct Validity of Kolb's Learning Style Inventory, Using Factor Analysis and Cuttman's Smallest Space Analysis. *Perceptual and Motor Skills* **63**, 1323-1326.

Katz, Y. J. (2002). Attitudes Affecting College Students' Preferences for Distance Learning. *Journal of Computer Assisted Learning* **18**(1), 2-9.

Kennedy, P. (2002). Learning Cultures and Learning Styles: Myth- understandings about Adult (Hong Kong) Chinese Learners. *International Journal of Lifelong Education* **21**(5), 430-445.

Kenning, M.-M. and Kenning, M. J. (1990). *Computers and Language Learning: Current Theory and Practice*. New York: Ellis Horwood.

Kern, R. and Warschauer, M. (2000). Introduction: Theory and Practice of Network-based Language Teaching. In Warschauer, M. and Kern, R. (Ed.), *Network-based Language Teaching: Concepts and Practice*. (pp. 1-19). New York: Cambridge University Press.

Kinginger, C. (1999). A Tele-Collaborative Course on French-American Intercultural Communication. *The French Review* **72**(5), 853-866.

Klein, G. S., Barr, H. L. and Wolitzky, D. L. (1967). Personality. *Annual Review of Psychology* **18**, 467-560.

Knezek, G., Miyashita, K. and Sakamoto, T. (1993). Cross-Cultural Similarities in Attitudes toward Computers and the Implications for Teacher Education. *Journal of Information Technology for Teacher Education* **2**(2), 193-204.

Kolb, D. A. (1984). *Experiential Learning: experience as the source of learning and development*. London: Prentice-Hall.

Koob, J. J. and Funk, J. (2002). Kolb's Learning Style Inventory: Issues of Reliability and Validity. *Research on Social Work Practice* **12**(2), 293-308.

Kothandapani, V. (1971). Validation of Feeling, Belief, and Intention to Act as Three Components of Attitude and Their Contribution to Prediction of Contraceptive Behavior. *Journal of Personality and Social Psychology* **19**(3), 321-333.

Kötter, M. (2003). Negotiation of Meaning and Codeswitching in Online Tandem. *Language Learning & Technology* **7**(2), 145-172.

Krashen, S. D. (1980a). The Input Hypothesis. In Alatis, J. E. (Ed.), *Georgetwon University Round Table on Languages and Linguistics 1980: Current Issues in Bilingual Education*. (pp. 168-180). Washington, D. C.: Georgetown University Press.

Krashen, S. D. (1980b). Relating Theory and Practice in Adult Second Language Acquisition. In Felix, S. W. (Ed.), *Second Language Development: Trends and Issues*. (pp. 185-204): Gunter Narr Verlag Tubingen.

Krashen, S. D. (1981). The 'Fundamental Pedagogical Principle' in Second Language Teaching. *Studia Linguistica* **35**(1-2), 50-70.

Krashen, S. D. (1982). *Principles and Practice in Second Language Acquisition*. Oxford: Pergamon.

Krashen, S. D. (1985). *The Input Hypothesis: Issues and Implications*. London and New York: Longman.

Krashen, S. D. (1988). *Second Language Acquisition and Second Language Learning*. London: Prentice Hall English Language Teaching.

Krüger, A. and Hamilton, S. (1997). RECALL: Individual Language Tutoring through Intelligent Error Diagnosis. *ReCALL* **9**(2), 51-58.

Kumaravadivelu, B. (1994). The Postmethod Condition: Emerging Strategies for Second/Foreign Language Teaching. *TESOL Quarterly* **28**(1), 27-48.

Kutay, C. and Ho, P. (2003 of Conference). *Assisting Students by Analysing Their Interaction and Learning*. Paper presented at AIED2003 Proceedings and Supplementary Proceedings, Sydney, Australia.

Kvavik, R. B. (2005). "Convenience, Communications, and Control: How Students Use Technology." Educating the Net Generation, From http://www.educause.edu/educatingthenetgen/.

Kvavik, R. B. and Caruso, J. B. (2005). ECAR Study of Students and Information Technology, 2005: Convenience, Connection, Control, and Learning. *ECAR Research Study* **6**.

Lai, K.-W. (1993). Teachers as Facilitators in a Computer-Supported Learning Environment. *Journal of Information Technology for Teacher Education* **2**(2), 127-137.

Lam, Y. and Lawrence, G. (2002). Teacher-Student Role Redefinition During a Computer-Based Second Language Project: Are Computers Catalysts for Empowering Change? *Computer Assisted Language Learning* **15**(3), 295-315.

Lamy, M.-N. (2004). Oral Conversations Online: Redefining Oral Competence in Synchronous Environments. *ReCALL* **16**(2), 520-538.

Landauer, T. K. (1999). *The Trouble with Computers: Usefulness, Usability, and Productivity*. Cambridge, Massachusetts&London, England: The MIT Press.

LaPiere, R. T. (1934). Attitudes vs. Actions. *Social Forces* **13**(2), 230-237.

Lawton, J. and Gerschner, V. T. (1982). A review of the Literature on Attitudes towards Computers and Computerized Instruction. *Journal of Research and Development in Education* **16**(1), 50-55.

Lee, C.-H. (1999). An Exploration Of Pedagogical Implications Of Using Network-based Computer Mediated Communication in the Communicative Language Classroom. *Interpersonal Computing & Technology (Online)* **7**(1-2).

Lee, C. H. M., Cheng, Y. W., Rai, S. and Depickere, A. (2005). What Affect Student Cognitive Style in the Development of Hypermedia Learning System? *Computers & Education* **45**, 1-19.

Lee, J., Hong, N. L. and Ling, N. L. (2002). An Analysis of Students' Preparation for the Virtual Learning Environment. *The Internet and Higher Education* **4**, 231-242.

Lee, R. S. (1970). Social Attitudes and the Computer Revolution. *Public Opinion Quarterly* **XXXIV**(1), 53-59.

Leh, A. S. C. (1999). Computer-Mediated Communication and Foreign Language Learning via Electronic Mail. *Interactive Multimedia Electronic Journal of Computer-Enhanced Learning* **1**(2).

Lenhart, A., Simon, M. and Graziano, M. P. a. (2001). "The Internet and Education: Findings of the Pew Internet & American Life Project." Retrieved 2005, From http://www.pewinternet.org/.

Leone, L., Van der Zee, K. I., Van Oudenhoven, J. P., Perugini, M. and Ercolani, A. P. (2005). The Cross-cultural Generalizability and Validity of the Multicultural Personality Questionnaire. *Personality and Individual Differences* **38**, 1449-1462.

Leow, R. P. (1993). To Simplify or Not to Simplify: A Look at Intake. *Studies in Second Language Acquisition* **333-355**.

Levine, T. and Donitsa-Schmidt, S. (1998). Computer Use, Confidence, Attitudes, and Knowledge: A Causal Analysis. *Computers in Human Behavior* **14**(1), 125-146.

Levy, M. (2000). Scope, Goals and Methods in CALL Research: Questions of Coherence and Autonomy. *ReCALL* **12**(2), 170-195.

Li, H. (2004). 教育原则和信息技术：谁是主宰者？--基于多媒体网络的英语教学模式中的教学法探讨. *Foreign Language World* **102**(4), 31-36.

Liang, L. and Jiao, J. (2002). 我国网络课程现状的调查分析与反思. *开放教育研究* **6**, 15-18.

Liao, Y.-K. C. (2005). Effects of Computer-Assisted Instruction on Students' Achievement in Taiwan: A Meta-Analysis. *Computers & Education* **In Press**(Corrected Proof).

Liaw, S.-S. (2002a). An Internet Survey for Perceptions of Computers and the World Wide Web: Relationship, Prediction, and Difference. *Computers in Human Behavior* **18**(1), 17-35.

Liaw, S.-S. (2002b). Understanding User Perceptions of World-Wide Web Environments. *Journal of Computer Assisted Learning* **18**(2), 139-150.

Liaw, S.-S., Chang, W.-C., Hung, W.-H. and Huang, H.-M. (2006). Attitudes toward Search Engines as a Learning Assisted Tool: Approach of Liaw and Huang's Research Model. *Computers in Human Behavior* **22**(2), 177-190.

Lightbown, P. and Spada, N. (1990). Focus-on-Focus and Corrective Feedback in Communicative Language Teaching: Effects on Second Language Learning. *Studies in Second Language Acquisition* **12**(4), 429-448.

Lightbown, P. M. and Spada, N. (1995). *How Languages are Learned.* Oxford: Oxford University Press.

Likert, R. (1932). A Technique for the Measurement of Attitudes (Reprinted). In Summers, G. F. (Ed.), *Attitude Measurement (1970).* (pp. 149-158). Chicago: Rand-McNally.

Littlejohn, A. H. (2002). Improving Continuing Professional Development in the Use of ICT. *Journal of Computer Assisted Learning* **18**(2), 166-174.

Littlewood, W. (1999). Defining and Developing Autonomy in East Asian Contexts. *Applied Linguistics* **20**(1), 71-94.

Liu, M. and Reed, W. M. (1994). The Relationship between the Learning Strategies and Learning Styles in a Hypermedia Environment. *Computers in Human Behaviour* **10**(4), 419-434.

Liu, M. and Reed, W. M. (1995). The Effect of Hypermedia Assisted Instruction on Second Language Learning. *Journal of Educational Computing Research* **12**(2), 159-173.

Liu, N. F. and Littlewood, W. (1997). Why Do Many Students Appear Reluctant to Participate in Classroom Learning Discourse? *System* **25**(3), 371-384.

Long, M. H. (1983a). Linguistic and Conversational Adjustments to Non-Native Speakers. *Studies in Second Language Acquisition* **5**(2), 177-193.

Long, M. H. (1983b). Native Speaker/Non-Native Speaker Conversation and the Negotiation of Comprehensible Input. *Applied Linguistics* **4**(2), 126-141.

Long, M. H. (1996). The Role of the Linguistic Environment in Second Language Acquisition. In Ritchie, W. C. and Bathia, T. K. (Ed.), *Handbook of Research on Second Language Acquisition.* (pp. 413-468). San Diego, CA: Academic Press.

Loo, R. (1999). Confirmatory Factor Analysis of Kolb's Learning Style Inventory (LSI-1985). *British Journal of Educational Psychology* **69**, 213-219.

Lounsbury, J. W., Welsh, D. P., Gibson, L. W. and Sundstrom, E. (2005). Broad and Narrow Personality Traits in Relation to Cognitive Ability in Adolescents. *Personality and Individual Differences* **38**, 1009-1019.

Loyd, B. H. and Gressard, C. P. (1984). Reliability and Factorial Validity of Computer Attitude Scales. *Educational and Psychological Measurement* **44**, 501-505.

Loyd, B. H. and Loyd, D. E. (1985). The Reliability and Validity of Instruments for the Assessment of Computer Attitudes. *Educational and Psychological Measurement* **45**, 905-908.

Lyster, R. (1994). The Effect of Functional-Analytic Teaching on Aspects of French Immersion Students' Sociolinguistic Competence. *Applied Linguistics* **15**(3), 263-287.

Ma, H. and Ai, Y. (2004). 网络英语教学中学生需求分析及对策. *高等农业教育* **12**(Dec.), 74-76.

MacFarlane, A. (1998). Information, Knowledge & Learning. *Higher Education Quarterly* **52**(1), 77-92.

MacLeod, H. A., Haywood, J. and Haywood, D. (2003). Survey of Freshers' ICT Experience & Attitudes, SCROLLA, The University of Edinburgh.

Mahmood, M. A., Burn, J. M., Gemoets, L. A. and Jacquez, C. (2000). Variables Affecting Information Technology End-User Satisfaction: A Meta-Analysis of the Empirical Literature. *International Journal of Human-Computer Studies* **52**, 751-771.

Mainemelis, C., Boyatzis, R. E. and Kolb, D. A. (2002). Learning Styles and Adaptive Flexibility: Testing Experiential Learning Theory. *Management Learning* **33**(1), 5-33.

Marcoulides, G. A. (1991). An Examination of Cross-Cultural Differences Toward Computers. *Computers in Human Behavior* **7**, 281-289.

Masiello, I., Ramberg, R. and Lonka, K. (2005). Attitudes to the Application of a Web-Based Learning System in a Microbiology Course. *Computers & Education* **45**, 171-185.

Matthews, G., Deary, I. J. and Whiteman, M. C. (2003). *Personality Traits (Second Edition)*. Cambridge: Cambridge University Press.

McCrae, R. R. and Costa, P. T. J. (1987). Validation of the Five-Factor Model of Personality Across Instruments and Observers. *Journal of Personality and Social Psychology* **52**(1), 81-90.

McCrae, R. R. and Costa, P. T. J. (1989). The Structure of Interpersonal Traits: Wiggins Circumflex and the Five Factor Model. *Journal of Personality and Social Psychology* **56**, 586-595.

McDonald, S. and Stevenson, R. J. (1998). Navigation in Hyperspace: An Evaluation of the Effects of Navigational Tools and Subject Matter Expertise on Browsing and Information Retrieval in Hypertext. *Interacting with Computers* **10**(2), 129-142.

McGorry, S. Y. (2002). Online, but on Target? Internet-Based MBA Courses: A Case Study. *The Internet and Higher Education* **5**, 167-175.

McGuire, W. J. (1960). A Syllogistic Analysis of Cognitive Relationships. In Rosenberg, M. J., Hovland, C. I., McGuire, W. J., Abelson, R. P. and Brehm, J. W. (Ed.), *Attitude Organization and Change: An Analysis of Consistency among Attitude Components*. (pp. 65-111). New Haven and London: Yale University Press.

McGuire, W. J. (1966). The Current Status of Cognitive Consistency Theories. In Feldman, S. (Ed.), *Cognitive Consistency: Motivational Antecedents and Behavioural Consequents*. (pp. 1-46). New York and London: Academic Press.

McGuire, W. J. (1969). The Nature of Attitudes and Attitude Change. In Lindzey, G. and Aronson, E. (Ed.), *The Handbook of Social Psychology*. (pp. 136-314). Reading, Massachusetts; London: Addison-Wesley Publishing Company.

McLaughlin, B. (1978). The Monitor Model: Some Methodological Considerations. *Language Learning* **28**(2), 309-332.

McMahon, J., Gardner, J., Gray, C. and Mulhern, G. (1999). Barriers to Student Computer Usage: Staff and Student Perceptions. *Journal of Computer Assisted Learning* **15**, 302-311.

Menzel, W., Herron, D., Morton, R., Pezzotta, D., Bonaventura, P. and Howarth, P. (2001). Interactive Pronunciation Training. *ReCALL* **13**(1), 67-78.

Messick, S. and Associates (1976). *Individuality in learning*. San Francisco: Jossey-Bass Publishers.

Miller, L. M. (2005). Using Learning Styles to Evaluate Computer-based Instruction. *Computers in Human Behavior* **21**, 287-306.

Mitchell, A. A. and Olson, J. C. (1981). Are Product Attribute Beliefs the Only Mediator of Advertising Effects on Brand Attitude? *Journal of Marketing Research* **18**(August), 318-332.

Mitchell, J. (2002). National Markets for VET Online Products and Services. *5th Annual AVETRA Conference*, Victoria, Australia.

Mitchell, T. J. F., Chen, S. Y. and Macredie, R. D. (2005). Hypermedia Learning and Prior Knowledge: Domain Expertise vs. System expertise. *Journal of Computer Assisted Learning* **21**, 53-64.

Mitrovic, A. and Martin, B. (2002). Evaluating the Effects of Open Student Models on Learning.

Moore, C. (1993). User Needs and Levels of Reality. *DELT LINGUA: Foreign Language Learning and the Use of New Technologies Conference Proceedings*, London: Commission of The European Communities.

Morales, R., Pain, H. and Conlon, T. (1999 of Conference). *From Behaviour to Understandable Presentation of Learner Models: A Case Study*. Paper presented at Proceedings of the Workshop 'Open, Interactive, and Other Overt Approaches to Learner Modelling' at AIED'99, Le Mans, France.

Motter-Hodgson, M. (1998). "Meeting the Needs of Diverse Types of Learners: Learning On-line and Learning Styles." From http://www.nald.ca/PROVINCE/ALT/AACE/NEWSLETT/sept96/news2.htm.

Moutafi, J., Furnham, A. and Paltiel, L. (2005). Can Personality Factors Predict Intelligence? *Personality and Individual Differences* **38**, 1021-1033.

Murphy, E. (1997). "Constructivist Learning Theory." From http://www.cdli.ca/~elmurphy/emurphy/cle2b.html.

Murray, G. L. (1999). Exploring Learners' CALL Experiences: A Reflection on Method. *Computer Assisted Language Learning* **12**(3), 179-195.

Murray, J. B. (1990). Review of Research on the Myers-Briggs Type Indicator. *Perceptual and Motor Skills* **70**, 1187-1202.

Myers, I. B., McCaulley, M. H., Quenk, N. L. and Hammer, A. L. (1998). *MBTI Manual: A Guide to the Development and use of the Myers-Briggs Type Indicator (Third edition)*. Mountain View, CA: Consulting Psychologists Press.

Myers, M. J. (2000). Voice Recognition Software and a Hand-Held Translation Machine for Second-Language Learning. *Computer Assisted Language Learning* **13**(1), 29-41.

Nash, J. B. and Moroz, P. A. (1997). Computer Attitudes among Professional Educators: the role of gender and experience. *Journal of Educational Computing Research* **17**(4), 341-356.

Neri, A., Cucchiarini, C., Strik, H. and Boves, L. (2002). The Pedagogy-Technology Interface in Computer Assisted Pronunciation Training. *Computer Assisted Language Learning* **15**(5), 441-467.

Neumeyer, L., Franco, H., Digalakis, V. and Weintraub, M. (2000). Automatic scoring of pronunciation quality. *Speech Communication* **30**, 83-93.

Newstead, S. E. (1992). A Study of Two 'Quick-and-Easy' Methods of Assessing Individual Differences in Student Learning. *British Journal of Educational Psychology* **62**, 299-312.

Nickell, G. S. and Pinto, J. N. (1986). The Computer Attitude Scale. *Computers in Human Behavior* **2**, 301-306.

Norman, W. T. (1963). Toward an Adequate Taxonomy of Personality Attributes: Replicated Factor Structure in Peer Nomination Personality Ratings. *Journal of Abnormal and Social Psychology* **66**, 574-583.

Nunan, D. (1999). A Foot in the World of Ideas: Graduate Study Through the Internet. *Language Learning & Technology* **3**(1), 52-74.

O'Connor, T. (1998). "Using Learning Style to Adapt Technology for Higher Education." From http://web.indstate.edu/ctl/styles/learning.html.

Oblinger, D. (2003). Boomers, Gen-Xers & Millennials: Understanding the New Students. *Educause Review* **38**(July/August), 37-47.

Omar, M. H. (1992). Attitudes of College Students Towards Computers: A Comparative Study in the United States and the Middle East. *Computers in Human Behavior* **8**, 249-257.

Ory, J. C., Bullock, C. and Burnaska, K. (1997). Gender Similarity in the Use of and Attitudes about ALN in a University Setting. *Journal of Asynchronous Learning Networks* **1**(1).

Osgood, C. E., Suci, G. J. and Tannenbaum, P. H. (1957). *The Measurement of Meaning*. Urbana: University of Illinois Press.

Ostrom, T. M. (1968). The Emergence of Attitude Theory: 1930-1950. In Greenwald, A. G., Brock, T. C. and Ostrom, T. M. (Ed.), *Psychological Foundations of Attitudes*. (pp. 1-32). New York and London: Academic Press.

Ostrom, T. M. (1969). The Relationship between the Affective, Behavioral, and Cognitive Components of Attitude. *Journal of Experimental Social Psychology* **5**, 12-30.

Oxford, R. L. (1989). Use of Language Learning Strategies: A Synthesis of Studies with Implications for Strategy Training. *System* **17**(2), 235-247.

Oxford, R. L. (1990). *Language Learning Strategies: What Every Teacher Should Know*. Boston, Massachusetts: Heinle & Heinle Publishers.

Oxford, R. L. and Burry-Stock, J. A. (1995). Assessing the Use of Language Learning Strategies Worldwide with ESL/EFL Version of the Strategy Inventory for Language Learning (SILL). *System* **23**(1), 1-23.

Oxford, R. L., Hollaway, M. E. and Horton-Murillo, D. (1992). Language Learning Styles: Research and Practical Considerations for Teaching in the Multicultural Tertiary ESL/EFL Classroom. *System* **20**(4), 439-456.

Pallant, J. (2001). *SPSS Survival Manual: a step by step guide to data analysis using SPSS for windows (version 10)*. Buckingham, Philadelphia: Open University Press.

Papanikolaou, K. A., Grigoriadou, M., Magoulas, G. D. and Kornilakisa, H. (2002). Towards New Forms of Knowledge Communication: The Adaptive Dimension of a Web-Based Learning Environment. *Computers & Education* **39**, 333-360.

Pask, G. (1976). Styles and Strategies of Learning. *British Journal of Educational Psychology* **46**, 128-148.

Pask, G. (1988). Learning Strategies, Teaching Strategies and Conceptual or Learning Style. In Schmeck, R. R. (Ed.), *Learning Strategies and Learning Styles*. (pp. 83-100). New York: Plenum Press.

Pearson, J. (2001). IT in Education: Policy and Provision in Hong Kong Schools. *Journal of Information Technology for Teacher Education* **10**(3), 29-290.

Pellettieri, J. (2000). Negotiation in Cyberspace: The Role of Chatting in the Development of Grammatical Competence. In Warschauer, M. and Kern, R. (Ed.), *Network-Based Language Teaching: Concepts and Practice.* (pp. 59-86). New York: Cambridge University Press.

Pennington, M. C. (1996). The Power of the Computer in Language Education. In Pennington, M. C. (Ed.), *The Power of CALL.* (pp. 1-14). Houston, Tex: Athelstan.

Pervin, L. A. (1990). A Brief History of Modern Personality Theory. In Pervin, L. A. (Ed.), *Handbook of Personality: Theory and Research.* (pp. 3-18). New York/London: The Guilford Press.

Peterson, M. (1997). Language Teaching and Networking. *System* **25**(1), 29-37.

Peterson, M. (2000). Directions for Development in Hypermedia Design. *Computer Assisted Language Learning* **13**(3), 253-269.

Pica, T. (2000). Tradition and transition in English language teaching methodology. *System* **28**(1), 1-18.

Pica, T. and Doughty, C. (1985). Input and Interaction in the Communicative Classroom: A Comparison of Teacher-Fronted and group Activities. In Gass, M. and Madden, C. G. (Ed.), *Input and Second Language Acquisition.* (pp. 115-132). Rowley, MA: Newbury House.

Pica, T., Lincoln-Porter, F., Paninos, D. and Linnell, J. (1996). Language Learners' Interaction: How Does It Address the Input, Output, and Feedback Needs of L2 Learners? *TESOL Quarterly* **30**(1), 59-84.

Pienemann, M. (1989). Is Language Teachable? *Applied Linguistics* **10**(1), 52-79.

Piper, A., Watson, J. and Wright, V. (1996). The World Wide Web and Its Contribution to Foreign Language Learning: An Evaluation of the Use of the Web by Teachers and Students. SIMA Report Series No. 25. Bristol, UK, Higher Education Funding Council for England. **25**.

Pope-Davis, D. B. and Twing, J. S. (1991). The Effects of Age, Gender, and Experience on Measures of Attitude Regarding Computers. *Computers in Human Behavior* **7**, 333-339.

Popovich, P. M., Hyde, K. R., Zakrajsek, T. and Blumer, C. (1987). The Development of the Attitudes toward Computer Usage Scale. *Educational and Psychologicaly Measurement* **47**, 261-269.

Prensky, M. (2001). Digital Natives, Digital Immigrants. *On the Horizon* **9**(5), http://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf.

Pujolà, J.-T. (2001). Did CALL Feedback Feed Back? Researching Learners' Use of Feeback. *ReCALL* **13**(1), 79-98.

Qi, D. and Wang, B. (2004). 网络英语教学模式中的教师角色分析. *外语电化教学* **98**(Aug.), 59-62.

Rainer, R. K. and Miller, D. M. (1996). An Assessment of the Psychometric Properties of the Computer Attitude Scale. *Computers in Human Behavior* **12**(1), 93-105.

Raines, C. (2002). "Managing Millennials." Retrieved 2005, From http://www.generationsatwork.com/articles/millennials.htm.

Ramirez, A. G. (1986). Language Learning Strategies Used by Adolescents Studying French in New York Schools. *Foreign Language Annals* **19**(2), 131-141.

Rao, L., Hu, Y. and Yao, X. (2005). 大学英语网络教学亟待解决的问题. *中国成人教育* **10**, 92-93.

Rayner, S. and Riding, R. (1997). Towards a Categorisation of Cognitive Styles and Learning Styles. *Educational Psychology* **17**(1-2), 5-27.

Reece, M. J. and Gable, R. K. (1982). The Development and Validation of A measure of General Attitudes toward Computers. *Education and Psychological Measurement* **42**, 913-916.

Reeves, T. C. (1986). Research and Evaluation Models for the Study of Interactive Video. *Journal of Computer-Based Instruction* **13**(4), 102-106.

Reinert, H. (1976). Picture Is Worth a Thousand Words? Not Necessarily! *Modern Language Journal* **60**, 160-168.

Rice, R. E. (1984). Mediated Group Communication. In Rice, R. E. (Ed.), *The New Media: Communication, Research, and Technology*. (pp. 129-156). Beverly Hill, CA: Sage.

Richards, J. C. and Rodgers, T. S. (1996). *Approaches and Methods in Language Teaching: A Description and Analysis*. New York: Cambridge University Press.

Richter, T., Naumann, J. and Groeben, N. (2000). Attitudes toward the Computer: Construct Validation of An Instrument with Scales Differentiated by Content. *Computers in Human Behavior* **16**, 473-491.

Rickman, J. and Grudzinski, M. (2000). Student Expectations of Information Technology Use in the Classroom. *EDUCAUSE Quarterly* **23**(1), 24-30.

Ritchie, W. C. and Bhatia, T. K. (1996). Second Language Acquisition: Introduction, Foundations, and Overview. In Ritchie, W. C. and Bathia, T. K. (Ed.), *Handbook of Research on Second Language Acquisition*. (pp. 413-468). San Diego, CA: Academic Press.

Rivers, W. M. (1964). *The Psychologist and the Foreign Language Teacher*. Chicago: University of Chicago Press.

Robertson, J. S., Grant, M. M. and Jackson, L. (2005). Is Online Instruction Perceived as Effective as Campus Instruction by Graduate Students in Education? *The Internet and Higher Education* **8**, 73-86.

Rosell-Aguilar, F. (2004). WELL Done and Well Liked: Online Information Literacy Skills and Learner Impressions of the Web as a Resource for Foreign Language Learning. *ReCALL* **16**(1), 210-224.

Rosen, L. D. and Maguire, P. (1990). Myths and Realities of Computerphobia: A Meta-Analysis. *Anxiety Research* **3**(3), 175-191.

Rosenberg, M. J. and Hovland, C. I. (1960). Cognitive, Affective, and Behavioral Components of Attitudes. In Rosenberg, M. J., Hovland, C. I., McGuire, W. J., Abelson, R. P. and Brehm, J. W. (Ed.), *Attitude Organization and Change: An Analysis of Consistency among Attitude Components*. (pp. 1-14). New Haven and London: Yale University Press.

Ross, J. and Schulz, R. (1999). Can Computer-aided Instruction Accommodate All Learners Equally? *British Journal of Educational Technology* **30**(1), 5-24.

Roussos, P. (2004). The Greek Computer Attitudes Scale: Construction and Assessment of Psychometric Properties. *Computers in Human Behavior* **In Press**(Corrected Proof).

Rubin, J. (1975). What the 'Good Language Learner' Can Teach Us. *TESOL Quarterly* **9**(1), 41-51.

Rüschoff, B. (2001). "Construction of Knowledge as the Basis of Foreign Language Learning." From http://www.uni-essen.de/anglistik/bernd/construction.htm.

Rutherford, W. and Sharwood Smith, M. (1985). Consciousness-Raising and Universal Grammar. *Applied Linguistics* **6**(3), 274-282.

Saggino, A. and Cooper, C. (2001). A Confirmatory Factor Analysis of the Myers-Briggs Type Indicator. *Personality and Individual Differences* **30**, 3-9.

Saggino, A. and Kline, P. (1995). Item Factor Analysis of the Italian Version of the Myers-Briggs Type Indicator. *Personality and Individual Differences* **19**, 243-249.

Saggino, A. and Kline, P. (1996). The Location of the Myers-Briggs Type Indicator in Personality Factor Space. *Personality and Individual Differences* **21**(4), 591-597.

Sakar, A. and Ercetin, G. (2005). Effectiveness of Hypermedia Annotations for Foreign Language Reading. *Journal of Computer Assisted Learning* **21**, 28-38.

Sanders, D. and Kenner, R. (1983). Whither CAI? The Need for Communicative Courseware. *System* **11**(1), 33-40.

Saracho, O. N. (1998). Research Directions for Cognitive Style and Education. *International Journal of Educational Research* **29**, 287-290.

Sarason, I. G. and Smith, R. E. (1971). Personality. *Annual Review of Psychology* **22**, 393-446.

Sato, K. and Kleinsasser, R. C. (1999). Communicative Language Teaching (CLT): Practical Understandings. *The Modern Language Journal* **83**(4), 494-517.

Savignon, S. J. and Wang, C. (2003). Communicative Language Teaching in EFL Contexts: Learner Attitudes and Perceptions. *IRAL* **41**, 223-249.

Saye, J. (1997). Technology and Educational Empowerment: Students' Perspectives. *Educational Technology Research and Development* **45**(2), 5-25.

Schmidt, R. W. (1990). The Role of Consciousness in Second Language Learning. *Applied Linguistics* **11**(2), 129-158.

Schmidt, R. W. (1992). Psychological Mechanisms Underlying Second Language Fluency. *Studies in Second Language Acquisition* **14**(4), 357-385.

Schumann, J. H. (1978). *The Pidginization Process: A Model for Second Language Acquisition.* Rowley, Massachusetts: Newbury House Publishers, Inc.

Sein, M. K. and Robey, D. (1991). Learning Style and the Efficacy of Computer Training Methods. *Perceptual and Motor Skills* **72**, 243-248.

Seliger, H. W. (1977). Does Practice Make Perfect? A Study of Interaction Patterns and L2 Competence. *Language Learning* **27**(2), 263-278.

Selwyn, N. (1997). Students' Attitudes toward Computers: Validation of A Computer Attitude Scale for 16-19 Education. *Computers & Education* **28**(1), 35-41.

Shaft, T. M., Sharfman, M. P. and Wu, W. W. (2004). Reliability Assessment of the Attitude towards Computers Instrument (ATCI). *Computers in Human Behavior* **20**, 661-689.

Sharwood Smith, M. (1981). Consciousness-Raising and the Second Language Learner. *Applied Linguistics* **11**(2), 159-168.

Shashaani, L. (1994). Gender Differences in Computer Experience and Its Influence on Computer Attitudes. *Journal of Educational Computing Research* **11**(4), 347-367.

Shaw, G. and Marlow, N. (1999). The Role of Student Learning Styles, Gender, Attitudes and Perceptions on Information and Communication Technology Assisted Learning. *Computers & Education* **33**(4), 223-234.

Shin, C. E., Schallert, D. L. and Savenye, W. C. (1994). Effects of Learner Control, Advisement, and Prior Knowledge on Young Students Learning in a Hypertext Environment. *Educational Technology Research and Development* **42**(1), 33-46.

Shindler, J. and Yang, H. (2000). "Paragon Learning Style Inventory." From http://www.oswego.edu/plsi/.

Skehan, P. (1989). *Individual Differences in Second-Language Learning*. London: Edward Arnold: A Division of Hodder & Stoughton.

Skehan, P. (2003). Focus on Form, Task and Technology. *Computer Assisted Language Learning* **16**(5), 391-411.

Slotte, V., Wangel, M. and Lonka, K. (2001). Information Technology in Medical Education: A Nationwide Project on the Opportunities of the New Technology. *Medical Education* **35**, 990-995.

Smith, B., Alvarez-Torres, M. J. and Zhao, Y. (2003). Features of CMC Technologies and Their Impact on Language Learners' Online Interaction. *Computers in Human Behavior* **19**, 703-729.

Smith, M. B. (1947-1948). The Personal Setting of Public Opinions: A Study of Attitudes toward Russia. *The Public Opinion Quarterly* **11**(4), 507-523.

Smith, M. B., Bruner, J. S. and White, R. W. (1956). *Opinions and Personality*. New York: John Wiley & Sons.

Snow, C. E. and Hoefnagel-Höhle, M. (1982). School-Age Second Language Learners' Access to Simplified Linguistic Input. *Language Learning* **32**(2), 411-430.

Soloman, B. A. and Felder, R. M. (2002). "Index of Learning Styles Questionnaire." From http://www.engr.ncsu.edu/learningstyles/ilsweb.html.

Söntgens, K. (2001). Circling the Globe: Fostering Experiential Language Learning. *ReCALL* **13**(1), 59-66.

Spears, R. and Lea, M. (1992). Social Influence and the Influence of the 'Social' in Computer-Mediated Communication. In Lea, M. (Ed.), *Contexts of Computer-Mediated Communication*. (pp. 30-65). Wheatsheaf: Harvester.

Stephens, K. (1997). Cultural Stereotyping and Intercultural Communication: Working with Students from the People's Republic of China in the UK. *Language and Education* **11**(2), 113-124.

Sternberg, R. J. (1999). *Thinking Styles*. New York: Cambridge University Press.

Sternberg, R. J. and Grigorenko, E. (2001). A Capsule History of Theory and research on Styles. In Sternberg, R. J. and Zhang, L.-f. (Ed.), *Perspectives on Thinking, Learning, and Cognitive Styles*. (pp. 1-21). Mahwah, NJ: Lawrence Erlbaum.

Stubbs, M. (1983). *Discourse Analysis: The Sociolinguistic Analysis of Natural Language*. Oxford: Blackwell.

Su, W. (2006). 大学英语口语教学之现状及思考. *外语教学研究* **7**, 127-128.

Sulloway, F. J. (2005). "The Big Five Personality Test: Research Overview." From http://www.outofservice.com/bigfive/info/.

Sun, Y. (2006). 大学英语教与学的现状及改革措施. *南阳师范学院学报（社会科学版）(Journal of Nanyang Normal University (Social Science))* **5**(5), 123-124.

Sur, M., Garraghty, P. E. and Roe, A. W. (1988). Experimentally Induced Visual Projections into Auditory Thalamus and Cortex. *Science* **242**(4884), 1437-1441.

Swain, M. (1985). Communicative Competence: Some Roles of Comprehensible Input and Comprehensive Ouput in Its Development. In Gass, S. M. and Madden, C. G. (Ed.), *Input in Second Language Acquisition*. (pp. 235-253). Cambridge: Newbury House Publishers.

Terrell, T. (1977). A Natural Approach to Second Language Acquisition and Learning. *The Modern Language Journal* **61**(7), 325-337.

Thompson, R., Higgins, C. A. and Howell, J. M. (1994). Influence of Experience on Personal Computer Utilization: testing a conceptual model. *Journal of Management Information Systems* **11**(1), 167-187.

Thorndike (1903). *Educational Psychology*. New York: The Science Press.

Thurstone, L. L. (1931). The Measurement of Social Attitudes. *The Journal of Abnormal and Social Psychology* **26**(3), 249-269.

Tittle, C. R. and Hill, R. J. (1967). Attitude Measurement and Prediction of Behaviour: An Evaluation of Conditions and Measurement Techniques. *Sociometry* **30**(2), 199-213.

Todman, J. and Drysdale, E. (2004). Effects of Qualitative differences in Initial and Subsequent Computer Experience on Computer Anxiety. *Computers in Human Behavior* **20**, 581-590.

Tokuda, N. (2002). New Developments in Intelligent CALL Systems in a Rapidly Internationalized Information Age. *Computer Assisted Language Learning* **15**(4), 319-327.

Tokuda, N. and Chen, L. (2004). A New KE-Free Online ICALL System Featuring Error Contingent Feedback. *Computer Assisted Language Learning* **17**(2), 177-201.

Triandis, H. C. (1971). *Attitude and Attitude Change*. New York: John Wiley.

Triantafillou, E., Pomportsis, A. and Demetriadis, S. (2003). The Design and the Formative Evaluation of an Adaptive Educational System Based on Cognitive Styles. *Computers & Education* **41**, 87-103.

Triantafillou, E., Pomportsis, A., Demetriadis, S. and Georgiadou, E. (2004). The Value of Adaptivity Based on Cognitive Styles: An Empirical Study. *British Journal of Educational Technology* **35**(1), 95-106.

Tsai, C.-C., Lin, S. S. J. and Tsai, M.-J. (2001). Developing an Internet Attitude Scale for High School Students. *Computers & Education* **37**, 41-51.

VanPatten, B. (1990). Attending to Form and Content in the Input: An Experiment in Consciousness. *Studies in Second Language Acquisition* **12**(3), 287-301.

VanPatten, B. and Cadierno, T. (1993). Input Processing and Second Language Acquisition: A Role for Instruction. *The Modern Language Journal* **77**, 45-57.

VanPatten, B. and Oikkenon, S. (1996). Explanation versus Structured Input in Processing Instruction. *Studies in Second Language Acquisition* **18**(4), 495-510.

Varonis, E. M. and Gass, S. (1985). Non-Native/Non-Native Conversations: A Model for Negotiation of Meaning. *Applied Linguistics* **6**(1), 71-90.

Veen, W. (1993). The Role of Beliefs in the Use of Information Technology: Implications for Teacher Education, or Teaching the Right Thing at the Right Time. *Journal of Information Technology for Teacher Education* **2**(2), 139-153.

Verheij, J., Stoutjesdijk, E. and Beishuizen, J. (1996). Search and Study Strategies in Hypertext. *Computers in Human Behavior* **12**, 1-15.

Wang, J. and Sun, C. (2005). 对我国大学英语多媒体网络化教学的再思考. *外语界 (Foreign Language World)* **108**(4), 13-18.

Wang, Q. (2003). 网络英语教学中学习者资助学习能力的培养. *山西广播电视大学学报* **36**(3), 81-82.

Ward, M. and Newlands, D. (1998). Use of the Web in Undergraduate Teaching. *Computers & Education* **31**, 171-184.

Warschauer, M. (1996). Comparing Face-to-Face and Electronic Communication in the Second Language Classroom. *CALICO Journal* **13**, 7-26.

Warschauer, M. (1997). Computer-Mediated Collaborative Learning: Theory and Practice. *The Modern Language Journal* **81**(4), 470-481.

Warschauer, M. (2000a). The Changing Global Economy and the Future of English Teaching. *TESOL Quarterly* **34**(3), 511-536.

Warschauer, M. (2000b). The Death of Cyberspace and the Rebirth of CALL. *English Teachers' Journal* **53**, 61-67.

Warschauer, M. (2000c). Online Learning in Second Language Classrooms: An Ethnographic Study. In Warschauer, M. and Kern, R. (Ed.), *Network-based Language Teaching: Concepts and Practice*. (pp. Cambridge, UK: Cambridge University Press.

Warschauer, M. (2005). "CALL vs. Electronic Literacy: Reconceiving Technology in the Language Classroom." Retrieved 2005, From http://www.cilt.org.uk/research/resfor2/warsum1.htm.

Warschauer, M. and Healey, D. (1998). Computers and Language Learning: An Overview. *Language Teaching* **31**, 57-71.

Warschauer, M., Turbee, L. and Roberts, B. (1996). Computer Learning Networks and Student Empowerment. *System* **24**(1), 1-4.

Wen, L. and Liu, L. (2005). 以学生为主体的大学英语多媒体网络教学模式探析. *教育与职业* **35**, 114-115.

West, R. F. (1982). A Construct Validity Study of Kolb's Learning Style Types in Medical Education. *Journal of Medical Education* **57**, 794-796.

White, L. (1987). Against Comprehensible Input: The Input Hypothesis and the Development of L2 Competence. *Applied Linguistics* **8**, 95-110.

White, L., Spada, N., Lightbown, P. M. and Ranta, L. (1991). Input Enhancement and L2 Question Formation. *Applied Linguistics* **12**(4), 416-432.

Wicker, A. W. (1969). Attitudes Versus Actions: The Relationships of Overt and Behavioural Responses to Attitude Objects. *Journal of Social Issues* **XXV**(4), 41-78.

Widdowson, H. G. (1978). *Teaching Language as Communication*. London: Oxford University Press.

Widdowson, H. G. (1979a). *Explorations in Applied Linguistics*. London: Oxford University Press.

Widdowson, H. G. (1979b). The Teaching of English as Communication. In Brumfit, C. J. and Johnson, K. (Ed.), *The Communicative Approach to Language Teaching*. (pp. 117-121). London: Oxford University Press.

Widdowson, H. G. (1984). *Explorations in Applied Linguistics 2*. Oxford: Oxford University Press.

Widdowson, H. G. (1998). The Conditions of Contextual Meaning. In Malmkjaer, K. and Williams, J. (Ed.), *Context in Language Learning and Language Understanding*. (pp. 6-23). Cambridge: Cambridge University Press.

Wilkins, D. A. (1976). *Notional Syllabuses*. Oxford: Oxford University Press.

Wilkins, D. A. (1979a). Grammatical, Situational and Notional Syllabuses. In Brumfit, C. J. and Johnson, K. (Ed.), *The Communicative Approach to Language Teaching*. (pp. 82-90). London: Oxford University Press.

Wilkins, D. A. (1979b). Notional Syllabuses and the Concept of a Minimum Adequate Grammar. In Brumfit, C. J. and Johnson, K. (Ed.), *The Communicative Approach to Language Teaching*. (pp. 91-98). London: Oxford University Press.

Wilson, T. and Whitelock, D. (1997). Monitoring a CMC Environment Created for Distance Learning. *Journal of Computer Assisted Learning* **13**(4), 253-260.

Windham, C. (2005). "The Students' Perspective." Educating the Net Generation, From http://www.educause.edu/educatingthenetgen/.

Witkin, H. A., Moore, C. A., Goodenough, D. R. and Cox, P. W. (1977). Field Dependent and Field Independent Cognitive Styles and Their Educational Implications. *Review of Educational Research,* **47**(1), 1-64.

Wolff, D. (1993). State of the Art, New Technologies for Foreign Language Teaching. *LINGUA DELTA: Foreign Language Learning and the Use of New Technologies Conference Proceedings*, London: Commission of The European Communities.

Wong, W. (2001). Modality and Attention to Meaning and Form in the Input. *Studies in Second Language Acquisition* **23**, 345-368.

Woodrow, J. E. J. (1991). A Comparison of Four Computer Attitude Scales. *Journal of Educational Computing Research* **7**(2), 165-187.

Xiao, L. and Yu, Z. (2002). 论计算机网络技术给大学英语教学带来的机遇和挑战. *外语研究 (Foreign Language Research)* **75**(5), 66-69.

Xu, D. (2006). 大学英语考试改革和教学改革探究. *教育与职业* **21**, 146-147.

Yang, B. and Lester, D. (2003). Liaw's measures of attitudes toward computers and the Internet: a supportive comment. *Computers in Human Behavior* **19**(5), 649-651.

Yang, X. (2005). 高校网络英语教学：问题，特点及教师角色. *外语电化教学* **101**(Feb.), 75-78.

Yang, Z., Zhang, S. and Xie, J. (2001). 大学英语教师的科研现状与问题分析. *外语教学(Foreign Language Education)* **22**(5), 79-83.

Yazon, J. M. O., Mayer-Smith, J. A. and Redfield, R. J. (2002). Does the Medium Change the Message? The Impact of a Web-Based Genetics Course on University Students' Perspectives on Learning and Teaching. *Computers & Education* **38**, 267-285.

Ying, H., He, L. and Zhou, S. (1998). 大学英语公共英语教学改革----以学生为中心的主题教学模式. *外语教学与研究* **4**, 22-26.

Zajonc, R. B. (1989). Feeling and Facial Efference. *Psychological Review* **96**(3), 395-416.

Zapata-Rivera, J.-D. and Greer, J. (2002). Collaborative Construction and Inspection of Learner Models. *Proceedings of Computer Support for Collaborative Learning CSCL 2002*, University of Colorado, Boulder, CO, USA.

Zapata, G. C. (2004). Second Language Instructors and CALL: A Multidisciplinary Research Framework. *Computer Assisted Language Learning* **17**(3-4), 339-356.

Zeiss, E. and Isabelli-Garcia, C. L. (2005). The Role of Asynchronous Computer Mediated Communication on Enhancing Cultural Awareness. *Computer Assisted Language Learning* **18**(3), 151-169.

Zha, G. and Zhang, J. (1999). 大学英语计算机辅助教学的构想. *山东外语教学* **74**(1), 26-33.

Zhang, L.-f. (2005). Validating the Theory of Mental Self-Government in a Non-Academic Setting. *Personality and Individual Differences* **38**, 1915-1925.

Zhang, L.-F. and Sternberg, R. J. (2002). Thinking Styles and Teacher Characteristics. *International Journal of Psychology* **37**(1), 3-12.

Zhao, Y. (2003). Recent Developments in Technology and Language Learning: A Literature Review and Meta-analysis. *CALICO Journal* **21**(1), 7-27.

Zhou, R. (2004). 大学英语计算机辅助教学研究. *井冈山师范学院学报（哲学社会科学）* **25**(2), 109-111.

Zubrow, D. (1987). How Computing Attitudes Change During the Freshman Year. In Kiesler, S. and Sproull, L. (Ed.), *Computing and Change on Campus*. (pp. Cambridge, New York, New Rochelle, Melbourne, Sydney: Cambridge University Press.

Zuckerman, M., Simons, R. E. and Como, P. (1988). Sensation-Seeking and Stimulus Intensity as Modulators of Cortical, Cardiovascular, and Electrodermal Response: A Cross-Modality Study. *Personality and Individual Differences* **9**, 361-372.

List of Publications

- Hu, Yuhua (2005). 'Chinese Students' Learning Styles and Computer-Assisted Learning (CAL)'. Paper presented at the 2nd College of Arts & Social Sciences Postgraduate Conference, University of Aberdeen. Available online: http://www.abdn.ac.uk/cass/pgradconf/archive.shtml

- Hu, Yuhua (2005). 'Chinese Students' Learning Styles and Computer-Assisted Learning (CAL)'. Proceedings of the 1st International Conference on Intercultural Communication Competence—Implications for Business, Education and Politics, Singapore. (*Eds*) Hansen, K., Ong, S. H., Apfelthaler, G., and Tapachai, N. ISBN 981-210-461-5.

- Hu, Yuhua; Haywood, Jeff; and MacLeod, Hamish (2005). 'Chinese Students and CALL: How Do They Fit?' Proceedings of the PacCALL Conference 2005, Kunming, P. R. China.

- Hu, Yuhua; Haywood, Jeff; and MacLeod, Hamish (2006). 'Chinese Students and CALL: How to Improve the Effectiveness?' Proceedings of IATEFL Conference 2006, Cyprus.

- Hu, Yuhua; Haywood, Jeff; and MacLeod, Hamish (2006). 'Chinese Students' Learning Styles and Computer Assisted Language Learning (CALL)'. Paper presented at EUROCALL Conference 2006 'Integrating CALL into Study Programmes', Granada, Spain.

Appendices

Appendix I: Data Analysis--Questionnaire 01 (2003)

Table 50: Academic Year at University

Year Level	Frequency
1st	5154
2nd	3
3rd	1
4th	5
Postgraduate	1
Total	5258

Table 51: Computer at Home

		Frequency	Valid Percent
Valid	No	2564	49.3
	Yes	2637	50.7
	Total	5201	100.0
	Missing	57	
Total		5258	

Table 52: Home Computer Use Frequency

		Frequency	Valid Percent	Cumulative Percent
Valid	Not at all	80	2.9	2.9
	With parents permission	225	8.1	10.9
	Limited time	586	21.0	32.0
	Anytime	1897	68.0	100.0
	Total	2788	100.0	
	Missing	2470		
Total		5258		

Table 53: Network at Home

		Frequency	Valid Percent
Valid	No	417	16.5
	Yes	2108	83.5
	Total	2525	100.0
Total		2637	

Table 54: Home Network Use Frequency

		Frequency	Valid Percent	Cumulative Percent
Valid	Not at all	34	2.3	2.3
	With parents permission	151	10.4	12.7
	Limited time	338	23.3	36.0
	Anytime	929	64.0	100.0
	Total	1452	100.0	
	Missing	1185		
Total		2637		

Table 55: Perceived Usefulness of Computers and the Internet

Perceived Usefulness	Mean	Median	Skewness
Learning Resources	3.98	4.00	-.66
Communication	3.98	4.00	-.39
Self Assessment	3.86	4.00	-.55
Information	3.83	4.00	-.36
Distance Education	3.79	4.00	-.28

Table 56: Expected CALL Importance

CALL Features	Mean	Median
Physical Flexibility	4.05	4.00
Individualized Feedback	4.01	4.00
Cognitive Flexibility	3.96	4.00
Communication	3.95	4.00
Collaboration	3.64	4.00

Table 57: Learning Style Scale Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.77	.78	37

Table 58: Learning Style Scale KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.82
Bartlett's Test of Sphericity	Approx. Chi-Square	25716.52
	df	666
	Sig.	.00

Table 59: Learning Style Scale Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.28	11.56	11.56	4.28	11.56	11.56
2	2.51	6.78	18.34	2.51	6.78	18.34
3	2.38	6.42	24.76	2.38	6.42	24.76
4	1.83	4.93	29.70	1.83	4.93	29.70
5	1.39	3.75	33.45	1.39	3.75	33.45
6	1.27	3.43	36.88	1.27	3.43	36.88
7	1.13	3.05	39.94	1.13	3.05	39.94
8	1.10	2.96	42.90	1.10	2.96	42.90
9	1.03	2.80	45.69	1.03	2.80	45.69

10	.98	2.66	48.35			
11	.97	2.63	50.99			
12	.95	2.57	53.56			
13	.92	2.50	56.05			
14	.91	2.45	58.50			
15	.86	2.32	60.82			
16	.84	2.27	63.09			
17	.83	2.25	65.34			
18	.80	2.17	67.52			
19	.79	2.14	69.66			
20	.75	2.03	71.69			
21	.75	2.01	73.70			
22	.73	1.98	75.68			
23	.71	1.93	77.61			
24	.70	1.89	79.50			
25	.68	1.85	81.35			
26	.67	1.80	83.15			
27	.64	1.73	84.87			
28	.63	1.69	86.56			
29	.61	1.65	88.21			
30	.61	1.65	89.86			
31	.58	1.56	91.42			
32	.57	1.54	92.96			
33	.55	1.50	94.45			
34	.54	1.46	95.91			
35	.52	1.41	97.33			
36	.51	1.38	98.71			
37	.48	1.29	100.00			

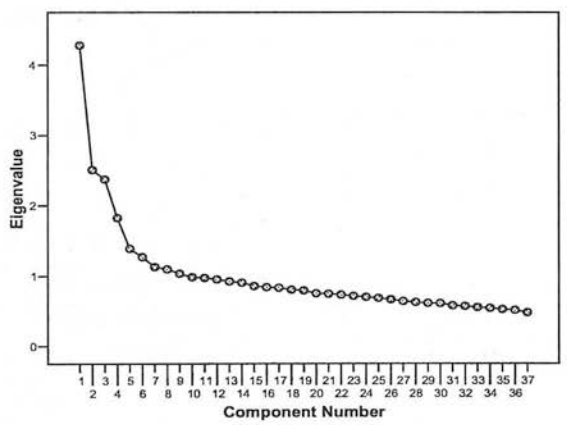

Figure 24: Learning Style Scale Scree Plot

Table 60: Learning Style Scale Rotated Component Matrix(a)

	Component				
	1	2	3	4	5
Methodical-Emergent 1	.642				
Methodical-Emergent 2	.621				
Methodical-Emergent 4	.442	-.311		.401	
Inductive-Deductive 1	-.442				
Inductive-Deductive 3	.434				
Impulsive-Reflective 2	-.408				
Sequential-Global 2	.344				-.331
Critical-Accepting 2		.536			
Critical-Accepting 1		.525			
Original-Traditional 1		.515			.328
Imaginative-Realistic 2		.408			
Experiential-Theoretical 4		-.384			
Proactive-Stress Avoider 3	.339	.384		.372	
Methodical-Emergent 3		-.365			
Sequential-Global 1		-.351			
Inductive-Deductive 2					
Initiator-Receptor 2			.580		
Gregarious-Intimate 1			.555		
Experiential-Theoretical 1			.536		
Gregarious-Intimate 3			.436		
Initiator-Receptor 1		.320	.431		
Initiator-Receptor 3		.331	.430		
Experiential-Theoretical 2			.409		
Experiential-Theoretical 3			.349		.311
Gregarious-Intimate 4	-.331		.346		
Proactive-Stress Avoider 1					
High-Low Tolerance 1				.671	
High-Low Tolerance 2				.660	
High-Low Tolerance 4				.587	
Proactive-Stress Avoider 2				.459	
Original-Traditional 2					.555
High-Low Tolerance 3					.525
Critical-Accepting 4					.509
Critical-Accepting 3					.420
Impulsive-Reflective 1	-.375	.346			-.413
Gregarious-Intimate 2			.358	.364	.398
Imaginative-Realistic 1					.367

Extraction Method: Principal Component Analysis; Rotation Method: Varimax with Kaiser Normalization; Rotation converged in 15 iterations.

Table 61: Learning Style Instrument Total Variance Explained

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	2.52	6.82	6.82
2	2.52	6.81	13.63
3	2.49	6.72	20.35
4	2.48	6.71	27.06
5	2.36	6.39	33.45

Extraction Method: Principal Component Analysis.

Table 62: Gender & Learning Style Factors

	Gender	Mean	Std. Deviation
Factor 1	Female	-.11	1.00
	Male	.04	.99
Factor 2	Female	-.23	.95
	Male	.08	1.01
Factor 3	Female	.04	.95
	Male	-.03	1.01
Factor 4	Female	.21	.96
	Male	-.10	1.00
Factor 5	Female	-.17	.96
	Male	.09	1.00

Appendix II: Data Analysis--Q01 (2003) vs. Q02 (2004)

Table 63: Recreational Use by Study Use Wilcoxon Signed Ranks Test

Recreational Use—Study Use	N	Mean Rank	Sum of Ranks	Test Statistics	
Negative Ranks	108(a)	149.94	16193.00	Z	-9.30(d)
Positive Ranks	269(b)	204.68	55060.00	Asymp. Sig. (2-tailed)	.00
Ties	136(c)				
Total	513				

a Recreational Use < Study Use; b Recreational Use > Study Use; c Recreational Use = Study Use; d Based on negative ranks.

Table 64: Computer Competence 2003 by 2004 Paired Samples T-test

Computer Competence	Mean	N	Std. Dev.	Paired Samples T-test	Paired Differences		t	df	Sig. (2-tailed)
					Mean	Std. Dev.			
2003	16.04	499	5.12		-4.88	4.15	-26.25	498	.00
2004	20.92	499	3.69						

Table 65: Surfing 2003 by 2004 Chi-Square Test

One Academic Year	Observed N	Expected N	Residual	Test Statistics	Time
2003	207	290.5	-83.5	Chi-Square(a)	48.0
2004	374	290.5	83.5	df	1
Total	581			Asymp. Sig.	.00

a 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 290.5.

Table 66: Learning Styles & E-learning

	Methodical—Emergent	Open-minded—Close-minded	Extraverted—Introverted	High—Low Ambiguity Tolerant
Computer Attitude	--	--	.20(**)	.17(**)
Study Use Frequency	.14(**)	--	--	.11(*)
CAL Voluntariness	--	.13(**)	.11(*)	--
NCE Online Liking	.15(**)	.13(**)	.14(**)	--

Table 67: Learning Styles & E-learning Usefulness

E-learning Features	Methodical-Emergent	Open-minded--Close-minded	Extroverted-Introverted	High-Low Ambiguity Tolerance
Self Pacing	.14(**)	--	.194**)	--
Peer Communication	--	--	.26(**)	--
Collaboration	.11(*)	--	.12(*)	.10(*)
Tutor Communication	.13(**)	--	.21(**)	.13(**)
(Time/Place) Flexibility	.15(**)	--	.10(*)	.12(*)
Instant Feedback	.13(**)	-.11(*)	.11(*)	--
Distance Education	.15(**)	--	--	--

Table 68: E-learning Liking by NCE Online Liking Paired Samples T-test

Paired Differences					t	df	Sig. (2-tailed)
Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
			Lower	Upper			
.63	.57	.02	.59	.68	28.59	657	.00

Appendix III: Data Analysis--Questionnaire 02 (2004)

Table 69: Favourite Learning Mode by English Level Correlation

Pearson Correlation	English Level (Band)
Favourite Learning Mode	-.08(*)

Table 70: Computer Confidence

Mean	Median	Std. Deviation	Skewness
3.91	4.00	.58	-.35

Table 71: Female & Male Computer Confidence

Computer Confidence	N	Mean	Std. Deviation
Female	233	3.79	.57
Male	427	4.00	.57

Table 72: Female by Male Computer Confidence Independent Samples Test

Equal variances	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
assumed	.15	.70	-4.60	658.00	.00	-.21	.05	-.30	-.12
not assumed			-4.58	472.31	.00	-.21	.05	-.30	-.12

Table 73: Computer & CALL Usefulness

	Mean	Median	Std. Deviation	Skewness
Computer Usefulness	4.31	4.40	.56	-1.09
CALL Usefulness	3.59	3.64	.66	-.25

Appendix IV: Data Analysis--Questionnaire 03 (Online)

Table 74: Self-reported Computer Competence in 2003 & 2004

Year	Computer Competence			
	Mean	Median	Std. Deviation	Skewness
2003	20.92	21.00	3.50	.05
2004	21.90	22.00	3.44	-.27

Table 75: NCE Online Usability

	Mean	**Median**	**Skewness**
Interface	4.36	4.00	-1.22
Infrastructure	4.23	4.00	-.94
General ease of use	4.12	4.00	-.62
Navigation	3.97	4.00	-.89
General comfort	3.97	4.00	-.75
Logical menu	3.88	4.00	-.47
Clear help information	3.84	4.00	-.38
System flexibility	3.79	4.00	-.41
Ease of information searching	3.58	4.00	-.27
Font size	3.49	4.00	-.17
Error tolerant	3.48	3.00	.11
System stability	3.30	3.00	-.21

Table 76: Learning Style Sequential-Global

Q8		Frequency	Valid Percent
Valid	Global	430	31.5
	Sequential	937	68.5
	Total	1367	100.0

Table 77: Learning Style Sequential-Global

Q15		Frequency	Valid Percent
Valid	Global	556	41.2
	Sequential	795	58.8
	Total	1351	100.0

Table 78: Learning Style Initiative-Receptive

Q7		Frequency	Valid Percent
Valid	Listener	1023	74.8
	Initiator	345	25.2
	Total	1368	100.0

Table 79: Learning Style Initiative-Receptive

Q17		Frequency	Valid Percent
Valid	Listen	390	28.9
	Suggest	959	71.1
	Total	1349	100.0

Table 80: Learning Style Critical-Accepting

Q10		Frequency	Valid Percent
Valid	Accept	732	53.6
	Challenge	633	46.4
	Total	1365	100.0

Table 81: Learning Style Gregarious-Intimacy (Seating)

Q11		Frequency	Valid Percent
Valid	Intimate	849	62.5
	Gregarious	510	37.5
	Total	1359	100.0

Table 82: Learning Style Gregarious-Intimacy (Study)

Q12		Frequency	Valid Percent
Valid	Alone	937	68.7
	With others	427	31.3
	Total	1364	100.0

Table 83: Learning Style Gregarious-Intimacy (In Class)

Q14		Frequency	Valid Percent
Valid	Alone	494	36.5
	Groupwork	860	63.5
	Total	1354	100.0

Table 84: Learning Style Gregarious-Intimacy (Project Work)

Q16		Frequency	Valid Percent
Valid	Individual	745	54.9
	Collaborative	611	45.1
	Total	1356	100.0

Appendix V: A Historical Summary of Computer Attitude Scales

Note: The table was originally from Shaft, Sharfman and Wu (2004). It is re-presented here with only minor modifications and additions. The instruments are listed chronologically according to the time each was first designed, and the other studies included under the same entry number of an instrument are those that either re-evaluated the reliability/validity of the original instrument or redesigned it.

Entry	Scale	Author	# of Items	Target population	Sample Population	Scale Type	Factor analysis	Internal consistency	Test–retest
1970s									
1	Nationwide Survey	Lee (1971)	20	General Population	Diverse General Public	Likert	Exploratory (Varimax)	□= 0.77– 0.79	n.a.
	Re-evaluation	Belleau and Summers (1993)	20	General Population	Undergraduate students	Likert	Exploratory (Varimax)	□=0.63	n.a.
1980s									
2	Computer Survey	Stevens (1980)	11	Educators	Student Teachers	Likert	n.a.	n.a.	n.a.
	Re-evaluation	Woodrow (1991)	11	Educators	Student Teachers	Likert	Exploratory (Varimax)	r= 0.56 (split-half)	n.a.
3	Attitudes about Computers	Zoltan and Chapanis (1982)	64	Professionals	CPA's, lawyers, pharmacists, MD's	Likert&Semantic Differential	Exploratory (Principal)	n.a.	n.a.
4	Attitudes Toward Computers	Reece and Gable (1982)	10	Students	7–8th Graders	Likert	Exploratory (Oblique & Varimax)	□ =.87	n.a.
	Re-evaluation	Woodrow (1991)	10	Students	Student Teachers	Likert	Exploratory (Varimax)	r=0.87(split-half)	n.a.
5	Beliefs About Computers	Ellsworth and Bowman (1982)	17	Students	Intro. Bio Students	Likert	n.a	□ =0.77	1-month r=0.85
6	Computer Use Questionnaire	Griswold (1983)	20	Educators	Student Teachers	Semantic Differential	n.a.	□ =0.75	n.a.
	Re-evaluation	Woodrow (1991)	20	Educators	Student Teachers	Likert	Exploratory (Varimax)	r = 0.66 (split-half)	n.a.
7	Cybernetics Attitude Scale	Wagman (1983)	100	General Population	College Students	Likert	Exploratory (Oblique)	n.a.	n.a.
8	Computer Attitude Scale (CAS)	Loyd and Gressard (1984)	30	Students	8–12th Graders	Likert	Exploratory (Principal & Varimax)	□ = 0.86– 0.95	n.a.
	Redesign	Loyd and Loyd (1985)	40	Educators	Educators	Likert	Exploratory (Principal & Varimax)	□ = 0.82– 0.90	n.a.
	Re-use & Re-evaluation	Massoud (1990)	30	Low-literate students	Students in GED Class	Likert	Exploratory (Varimax)	□ = 0.75– 0.91	n.a.
	Redesign	Bandalos and Benson (1990)	23	Students	Graduates& Undergraduates	Likert	Exploratory & Confirmatory	□ = 0.86– 0.91	n.a.
	Re-evaluation	Woodrow (1991)	30	Students	Student Teachers	Likert	Exploratory (Varimax)	r = 0.94 (split-half)	n.a.

	Re-use & Re-evaluation	Nash and Moroz (1997)	40	Educators	Certified Teachers	Likert	Confirmatory (Varimax)	□ = 0.86	n.a.
9	Computer Attitude Scale	Collis (1984)	24	Students	Secondary Students	Likert	Exploratory	n.a.	n.a.
10	Attitude Towards MIS (ATMIS)	Kjerulff and Counte (1984)	20	Students	Hospital Staff Volunteers	Likert	n.a.	□ = 0.89	n.a.
	Attitude Toward Computers in General (ACG)	Kjerulff and Counte (1984)	20	Students	Hospital Staff Volunteers	Semantic Differential	n.a.	□ = 0.85	n.a.
11	Attitude Towards Computers Instrument (ATCI)	Sharfman & Gleeson (1984)							
12	Computer Attitude Scale (CATT)	Dambrot, Watkins-Malek, Silling, Marshall, & Garver (1985)	20	Students	College Freshman	Likert	n.a.	□ = 0.79– 0.84	n.a.
13	Cognitive & Affective computer attitudes	Bannon et al. (1985)	17	Educators & Students	Students & Educators	Likert	Exploratory (Varimax)	□ = 0.90– 0.93	n.a.
14	Attitude Toward CAI	Allen (1986)	21	Students (professional: nursing, EE, etc.)	Nursing Students	Semantic Differential	Exploratory (Varimax)	□ = 0.58– 0.83	n.a.
15	Computer Attitude Scale (CAS)	Nickell and Pinto (1986)	20	General Population	Students	Likert	n.a.	□ = 0.81	2-weeks r = 0.86
	Re-evaluation	Harrison&Rainer (1992)							
16	Computer Attitude scale	Abdel-Gaid, Trueblood, and Shrigley (1986)	23	Teachers	Secondary Teachers	Semantic Differential	Exploratory	□ = 0.89	n.a.
17	Attitudes Toward Computer Usage Scale (ATCUS)	Popovich, Hyde, and Zakrajsek (1987)	20	General Population	Undergraduate College Students	Likert	Exploratory	□ = 0.84– 0.88	2-weeks r = 0.81-0.91
	Re-evaluation	Belleau and Summers (1993)	20	General Population	Undergraduate students	Likert	Exploratory (Varimax)	□ = 0.4259	n.a.
18	Bath County Computer Attitudes Inventory (BCCAS)	Bear et al. (1987)	26	Students	4–12th Graders	Likert	n.a.	□ = 0.94	n.a.
19	Attitudes Toward Computers Scale (ATCS)	Rosen et al. (1987)	26	General Population	University Students (in multiple studies)	Likert	Exploratory	□ = 0.76	n.a.
20	Minnesota Computer Literacy & Awareness Assessment Instrument (MCLAA)	Swadener and Hannafin (1987)	17	Students	6th Graders	Likert	n.a.	□ = 0.68– 0.74	n.a.
	Redesign	Comber Colley,							

		Hargreaves, & Dorn (1998)	12	Students	Secondary School Students	Likert	n.a.	□ = 0.79– 0.88	n.a.
21	Attitudes to Computers of Managers in the Hospitality Industry	Gamble (1988)	17	Managers in Hospitality Industry	Hospitality Workers	n.a.	n.a.	n.a.	n.a.
22	Computer Attitude Measure (CAM)	Kay (1989)	30	General Population	Student Teachers	Likert & Semantic Differential	Exploratory (Varimax)	□ = 0.87– 0.94	n.a.
1990s									
23	Computer Attitudes & Learning Performance	Gattiker and Hlavka (1992)	17	Students	Students	Likert	Exploratory (Varimax)	□ = 0.68	n.a.
24	Attitudes Toward Computers Questionnaire (ATCQ)	Jay and Willis (1992)	32	Elderly	Elderly in a Community Home	Likert	n.a.	n.a.	n.a.
25	Attitude Toward Computer Scale (ATCS)	Francis (1993)	24	Students	BYU Undergrads	Likert	Exploratory (Varimax)	n.a.	n.a.
26	Computer Attitude Survey	Klein, Knupfer, and Crooks (1993)	15	Students	Students	Likert	Exploratory (Varimax)	□ = 0.69–0.83	n.a.
27	Computer Attitude Scale for Secondary Students (CASS)	Jones and Clarke (1994)	40	Students	Secondary Students	Likert	n.a.	□ = 0.95	2-weeks r = 0.84
28	Teacher Computer Attitude Scale ETSU	Huang et al. (1995)	23	Educators	Teachers	Likert	n.a.	□ = 0.73–0.95	n.a.
29	Computer Attitude Scale	Dubois et al. (1995)	23	Educators	Student Teachers	Semantic Differential	n.a.	n.a.	n.a.
30	Attitudes toward Technology	Pelton and Pelton (1997)	42	Educators	College Students	Likert	Exploratory (Varimax)	n.a.	n.a.
31		Selwyn (1997)							
32	Computer Attitudes of non-computing Academics	Seyal et al. (1999)	12	Non-computing Academics	Academics	Likert	Exploratory (Principal)	□ = 0.79	n.a.
2000s									
33	Questionnaire for the Content-differentiated Assessment of Attitudes toward the Computer (QCAAC) (German)	Ritcher, Naumann & Groeben (2000)	52	University Students of the Humanities & Social Sciences	Students & Academics	Likert	Confirmatory	n.a.	n.a.
34	Computer Self-efficacy Scale	Young (2000)	48	Students	Middle & High School Students	Likert	Exploratory (Principal)	□ = 0.64–0.87	n.a.
35	The Greek Computer Attitudes Scale (GCAS)	Roussos (2004)							

Appendix VI: Teacher Questionnaire Data Analysis

Table 85: Band Levels

	Missing	Band 1	Band 2	Band 3	Band 4	Band 5	Band 2&3	Band 3&4	Band 3&5	Band 3&6	Total
Frequency	4	11	14	8	8	2	1	1	1	1	51
Percent	7.8	21.6	27.5	15.7	15.7	3.9	2.0	2.0	2.0	2.0	100.0

Table 86: Computer Type

	Desktop	Laptop	Both	None
Percent (%)	66.7	7.8	23.5	2.0

Table 87: Operating System

Operating System	Desktop		Laptop	
	Frequency	Percent (%)	Frequency	Percent (%)
Win98	17	36.2	2	13.3
Win2000	17	36.2	3	20.0
WinXP	13	27.7	10	66.7
Total	47	100.0	15	100.0

Table 88: Main Computer Use Frequency

Proportion in All Computer Use	Rarely (0-10%) (%)	Not often (10-30%) (%)	Medium (30-50%) (%)	Often (50-70%) (%)	Very often (70-100%) (%)
For Teaching	2.0	8.2	16.3	34.7	38.8
For Personal Affairs	14.6	2.1	12.5	18.8	39.6
For Recreation	24.5	28.6	10.2	12.2	20.4

Table 89: Self-reported Computer Competence

Computer Skills	Minimum	Maximum	Mean	Skewness
Audio File Editing	1.00	4.00	1.63	1.04
File Format Change	1.00	5.00	1.69	1.50
Webpage Editing	1.00	5.00	1.88	1.72
Daily Scheduling	1.00	5.00	2.08	1.20
Scanning	1.00	5.00	2.38	.83
Image Editing	1.00	5.00	2.40	.58
Excel	1.00	5.00	2.98	.43
Winzip	1.00	5.00	3.00	.11
PDF Reader	1.00	5.00	3.02	.00
Anti-virus	1.00	5.00	3.48	-.15
Powerpoint	1.00	5.00	4.20	-1.24
Word	2.00	5.00	4.45	-1.27

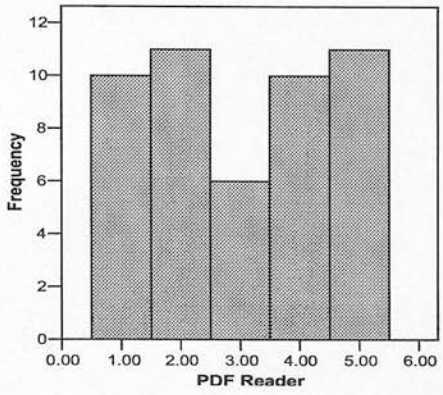

Figure 25: Self-reported Competence for PDF Reader

Table 90: Helpfulness by Use Frequency Correlations

Pearson Correlation	NCE Online Helpfulness
NCE Online Use Frequency	.41(**)

Table 91: Teacher Training

	Not Necessary	Not Bothered	Better Than None	Necessary but Short	Necessary & Detailed
Frequency	1	6	8	26	7
Percent	2.1	12.5	16.7	54.2	14.6

Appendix VII: Questionnaire Instruments

(both original Chinese versions and translated English versions)

关于计算机辅助学习的调查问卷

如何填写该问卷： 如果是选择题，请在您所选的选项旁边或下面的小框内打一个叉（如图所示：☒），请注意有些题可有多项选择；如果是需要您填写数字或文字的问题，请将您的回答直接填写在空框内。您为该问卷提供的所有信息仅为此研究项目所用，并将受到严格保密。

Thank You Very Much for Your Kind Assistance!

请根据您在进入现在的大学之前的使用电脑的经历来回答第 1 到第 5 个问题。

1. **您在自己的家中是否有电脑及因特网？如果有，请点击答案‘有’右边的圆圈并且选择您对电脑或因特网的使用情况；如果没有，请点击答案‘无’然后直接去第 2 题。**

使　用　情　况	电脑 有☐ 无☐	因特网 有☐ 无☐
我可以在任何时候使用	☐	☐
我只能每天或每周使用有限的一段时间	☐	☐
我只有在得到允许（如父母允许）的情况下才能使用	☐	☐
我完全不能使用	☐	☐

2. **如果您能够在家里，学校里，或其它地方使用电脑，那么您一般会多么频繁地使用电脑来辅助您的学习？**

每天 ☐　每周数次 ☐　每周一次 ☐　每月一次 ☐　很少或几乎没有 ☐

3. **如果您能够在家里，学校里，或其它地方使用因特网，那么您一周大致会花多长时间为个人休闲娱乐目的而上网？**

10 个小时或者 10 个小时以上 ☐　7-9 个小时 ☐　5-6 个小时 ☐　3-4 个小时 ☐　1-2 个小时 ☐　0 个小时 ☐

4. **如果您对第 3 题的回答多于 0 个小时，那么您将因特网主要用于以下哪些用途？（*可有多项选择*）**

网上聊天 ☐　电子邮件 ☐　下载文件，比如音乐或程序 ☐　网上购物或订货 ☐　网上银行或其它类似网上商务 ☐　网上冲浪 ☐　玩游戏 ☐

5. **请选择您对下列一些电脑软件的应用的熟悉程度。**

计算机的应用	非常有信心	有信心	我会需要一些帮助	从未使用过
Word，比如用 Word 写一篇格式整齐漂亮的文章	☐	☐	☐	☐
网页浏览器（Web Browser），比如用类似 Google 的搜索工具查找信息	☐	☐	☐	☐
电子邮件 (Email)，比如用 163 或者 Hotmail 的邮箱来收发信件	☐	☐	☐	☐
留言板或聊天室，比如用 OICQ 或者 MSN 在网上和别人聊天	☐	☐	☐	☐
Powerpoint，比如用微软的 Powerpoint 制作幻灯片以便在课堂上作演示	☐	☐	☐	☐
网页制作，比如用 Dreamweaver or HTML 语言自己设计网页	☐	☐	☐	☐
图形编辑，比如用 Photoshop 之类的软件改变照片的大小及色彩	☐	☐	☐	☐

6. **如果您住在学校的宿舍里，请问您的房间里有电脑吗？请在下列选项中选择与您的情况最接近的一项。**

☐ 我有一台完全属于我自己的电脑，我可以在任何时候使用它。
☐ 我有一台电脑，不过我经常借给我的同学使用，所以有时候我自己的使用反而受限制了。
☐ 我和别人合买了一台电脑，所以我们分享使用这台电脑。
☐ 我自己没有电脑，不过我可以比较方便地使用朋友或者同寝室同学的电脑。
☐ 我现在没有电脑，也不能使用别人的电脑，不过我会在不久的将来买一台电脑。
☐ 我现在没有电脑，也无法使用别人的电脑，近期也不会购买电脑。

7. 如果您住在学校的宿舍里，请问您的房间里有校网或者因特网的接入端口吗？同时请选择在校期间您会在多大程度上利用网络。

校网或者因特网

- ☐ 只要我需要，我在房间里既可以上校网也可以上因特网。
- ☐ 在我的房间里，我只能进入校网。
- ☐ 我的房间里没有任何网络的接入，不过我会去学校的机房上网。

使用频率

- ☐ 在校期间，我会花大量的时间使用网络（校网或因特网）
- ☐ 我会在必需的时候花一定的时间利用网络。
- ☐ 我对上网不感兴趣，所以不会花多少时间使用校网或因特网。

8. 您到目前为止一共已经学了多少年的英语？

多于12年 ☐　9-12年 ☐　6-9年 ☐　3-6年 ☐　0-3年 ☐

9. 您在来这所大学之前，一般情况下每周在英语学习上花多少时间（包括上课与自习时间）？

10个小时以上 ☐　8--10小时 ☐　6－8个小时 ☐　4－6个小时 ☐　2－4个小时 ☐　0－2个小时 ☐

10. 到目前为止，您已经使用了以下哪些途径学习英语？（*可有多项选择*）

书本或者其它印刷材料 ☐　录音磁带 ☐　录像带 ☐　广播节目 ☐　电视节目 ☐　电脑光盘或其它软件 ☐　因特网 ☐　学校正常英语课以外的补习班或加强班或私人家教 ☐

11. 请将下面英语学习的 5 个方面从最容易（1）到最困难（5）排列顺序。请点击各选项右边选择框内的小箭头，然后在弹出的菜单中选择一个数字.

☐记忆与使用新的单词及词组　☐理解及正确使用语法　☐听力理解　☐写作　☐口语

12. 总的来说，与其它学科的学习相比，您对英语学习的感觉如何？

☐我非常喜欢学习英语　☐我比较喜欢学习英语　☐既谈不上喜欢也没有很不喜欢　☐我不喜欢学英语　☐我讨厌学英语

13. 为了改进教学，我们需要知道您学习的方法与风格，所以请选择您对以下说法的认可程度。

学习方法	完全同意	基本同意	中立（无意见）	基本不同意	完全不同意
我喜欢老师布置那种要2或3个同学一起合作完成的作业或任务。	☐	☐	☐	☐	☐
我做事一般是更关注全局，而不是具体的细节。	☐	☐	☐	☐	☐
如果我在一个小组里，我总是比较爱发言的那一个。	☐	☐	☐	☐	☐
我喜欢完成一项任务以后再去做另一项任务，而不喜欢同时开展好几项任务或解决好几个问题。	☐	☐	☐	☐	☐
我更注重已有的现实，而较少想象有可能发生或实现的各种情况。	☐	☐	☐	☐	☐
我喜欢先学习理论与规律，然后运用它们解释或解决问题。	☐	☐	☐	☐	☐
我喜欢老师在黑板上画很多图形或表格来说明概念或解释问题。	☐	☐	☐	☐	☐
我喜欢发起或组织一些集体活动，比如朋友聚会，班级郊游野炊等。	☐	☐	☐	☐	☐
我只有在动手实践过以后才能很好的理解原理或定律。	☐	☐	☐	☐	☐
如果我在一个学习小组里和其他人一起解决一个比较难的问题，我很喜欢参与并提出我的想法或建议。	☐	☐	☐	☐	☐
我喜欢那些强调事实与数据的课程，而不太喜欢有很多理论与概念的抽象的课程。	☐	☐	☐	☐	☐
需要完成一项学习任务的时候，我总是喜欢尝试用一种自己设想出来的新的方法去完成。	☐	☐	☐	☐	☐
我经常和别人有不同的意见或看法，而且喜欢因此而与别人理论。	☐	☐	☐	☐	☐
我不喜欢上动手做实验的课。	☐	☐	☐	☐	☐
课堂里小组活动的时候，我总觉得自己不能很好地参与。	☐	☐	☐	☐	☐
我更喜欢英语老师让我们写一篇虚构的故事而不是记叙性的文章。	☐	☐	☐	☐	☐
我经常怀疑老师或课本的正确性。	☐	☐	☐	☐	☐
在学习小组里，即使我有不同意见，我也总是会接受并按照小组里其他成员最终决定的方法共同去完成一项学习任务。	☐	☐	☐	☐	☐
一般情况下，即使没有实验课，我也能很快地理解课本上的理论或定理。	☐	☐	☐	☐	☐
如果有机会，我愿意尝试一些有冒险性的体育活动，如蹦极跳或跳伞。	☐	☐	☐	☐	☐

学习方法	完全同意	基本同意	中立（无意见）	基本不同意	完全不同意
在课堂上与别人合作进行小组活动的时候，我的学习效果要比没有小组活动的时候好很多。	□	□	□	□	□
我不是很擅长于发现事物有问题或有缺陷的一面，比如，如果桌上有半玻璃杯的水，我会比较注意杯子里有一半的水，而不是杯子有一半是空的。	□	□	□	□	□
很多时候我总是还未仔细考虑就草率行事。	□	□	□	□	□
一般来说，如果我在广播里听到一个故事，我对它的记忆会比我在报纸上读到同样这则故事更加深刻。	□	□	□	□	□
我做事通常是井然有序，很有步骤，按部就班。	□	□	□	□	□
我喜欢按照约定俗成或已知的方式做事。	□	□	□	□	□
在课外阅读英语文章的时候，我必须在理解每个单词以后才会觉得自己掌握了整篇文章的内容。	□	□	□	□	□
我喜欢读侦探小说，因为我喜欢根据点点滴滴的线索推测谁是罪犯。	□	□	□	□	□
我喜欢在写英语作文的时候试着使用新学到的单词或词组。	□	□	□	□	□
当我读一篇很有意思的英文文章的时候，我喜欢先忽略那些新单词，一口气读完，了解整篇文章的主要内容。	□	□	□	□	□
我喜欢别人告诉我完成某任务所需的每个步骤，而不喜欢自己琢磨如何才能完成这个任务。	□	□	□	□	□
我喜欢挑战自己现有的学习水平，尝试一些难度稍高的学习任务。	□	□	□	□	□
我喜欢把每天要做的事情先按照重要性或紧急性安排好顺序，然后再一件一件地去做。	□	□	□	□	□
我喜欢先学习许多案例，然后从中总结出规律或理论。	□	□	□	□	□
我总是急于尝试一些新的东西，而没有耐心阅读相应的使用说明，比如当我买了一个新的 Walkman 或手机的时候。	□	□	□	□	□
我的学习很没有规律，有点三天打鱼两天晒网。	□	□	□	□	□
我经常因为一篇英语的文章里有比较多的生词而感到很沮丧，哪怕文章本身再有意思，我都有可能最终放弃阅读。	□	□	□	□	□
在情况不确定的时候，我通常相信自己的逻辑推理而不是主观感觉。	□	□	□	□	□
通常我喜欢自己一个人学习。	□	□	□	□	□
在学一个新单词的时候，我把这个单词看几遍以后的记忆要比把这个单词听几遍以后（比如在磁带里）的记忆要好。	□	□	□	□	□

14. 以下各项涉及计算机在平时学习中的使用，请选择说明您对每项的认可程度。

	完全同意	基本同意	中立（无意见）	基本不同意	完全不同意
如果能在教室里用电脑来辅助我们的课堂学习，我觉得我们的课程会变得更有意思。	□	□	□	□	□
我对计算机技术在我们学习中的应用感到很适应。	□	□	□	□	□
我宁愿与老师面对面的交流，也不愿意与电脑交流或者通过电脑与老师交流。	□	□	□	□	□
我可以接受通过电脑或网络完全自学的学习模式。	□	□	□	□	□
即使电脑的某些应用有些复杂，我也很愿意运用它来帮助我学习。	□	□	□	□	□
与在课堂里面对着很多人讲话或者当面提出我的意见或想法相比，我更喜欢通过网络上的留言板或聊天室与我的同学交流。	□	□	□	□	□
我觉得那些多媒体学习材料（如光盘）比书本对学习的帮助要大。	□	□	□	□	□
我喜欢课堂学习的方式，这样我可以和别人有面对面的交流。	□	□	□	□	□

15. 您觉得以下电脑及网络的应用对您的英语学习会有多大的帮助？（如果您从未使用过其中某些技术，请根据您的理解对它们的有益性作一下预测）

电脑与网络的应用	非常有帮助	有些帮助	不清楚	不太有帮助	完全没有帮助
通过电子邮件与其他国家的朋友用英语交流	□	□	□	□	□
在网上的聊天室里与朋友用英语聊天	□	□	□	□	□
利用因特网上的影音资源练习听力，比如欧美的流行音乐	□	□	□	□	□
在电脑上观看英文版的电影	□	□	□	□	□

电脑与网络的应用	非常有帮助	有些帮助	不清楚	不太有帮助	完全没有帮助
在电脑上进行模拟测试或者自我测验	☐	☐	☐	☐	☐
参与网上的一些论坛，与别人用英语讨论共同感兴趣的话题	☐	☐	☐	☐	☐
在网上冲浪，寻找国外网站提供的有用信息	☐	☐	☐	☐	☐
参加国内其他院校甚至国外院校的网上教学课程	☐	☐	☐	☐	☐

16. 你们即将开始使用的 NCEonline 有可能让您能够做到下面所列的事情，请问您觉得它们对您来说有多重要？

	非常重要	比较重要	有点重要	不太重要	不清楚
我能够与其它班级的学生甚至其他国家的同龄人进行交流	☐	☐	☐	☐	☐
我能够在任何我喜欢的时间学习英语	☐	☐	☐	☐	☐
我能在教室或校园以外的地方学英语，比如当我在家里休假的时候也能继续学习	☐	☐	☐	☐	☐
于课堂学习相比，我能从老师那里得到更频繁，更有针对性的指导与反馈。	☐	☐	☐	☐	☐
我对我自己学习的管理有更大的自由度，比如我可以反复地做某个练习直到我自己满意为止，我也可以经常查看电脑上记录的我的学习进程以便确定自己的学习内容	☐	☐	☐	☐	☐
我有更多的机会与其他学生合作学习或共同完成一个课题项	☐	☐	☐	☐	☐
我可以方便地获取更多的与学习相关的信息以及资源	☐	☐	☐	☐	☐

接下来请告知一些您的个人情况

17. 您的年级 1 年级 ☐ 2 年级 ☐ 3 年级 ☐ 4 或 5 年级 ☐ 研究生或以上 ☐

18. 您的性别: 女 ☐ 男 ☐

19. 您的学号(请填写 _____ **您的年龄（请填写）:** _____

20. 您现在的英语水平为: 一级 ☐ 二级 ☐ 三级 ☐ 四级 ☐ 五级或六级 ☐

21. 您所在的学院或系的名称（请选择）:

☐ 经济学院 ☐ 法学院 ☐ 电气工程学院 ☐ 机械与能源工程学院 ☐ 信息科学与工程学院
☐ 人文学院 ☐ 医学院 ☐ 建筑工程学院 ☐ 材料与化学工程学院 ☐ 计算机科学及技术学院
☐ 管理学院 ☐ 药学院 ☐ 生命科学学院 ☐ 环境与资源学院 ☐ 生物医学工程与仪器科学学院
☐ 教育学院 ☐ 理学院 ☐ 动物科学学院 ☐ 农业与生物技术学院 ☐ 生物系统工程与食品科学学院
☐ 外国语学院

♣如果你不属于上述的任何学院，请在横线上填写你的学院名称: _____

22. 您所居住的国内的城/镇的名称（请选择）:

☐ 安徽 ☐ 北京 ☐ 福建 ☐ 甘肃 ☐ 广东 ☐ 广西
☐ 贵州 ☐ 海南 ☐ 河北 ☐ 黑龙江 ☐ 河南 ☐ 湖北
☐ 湖南 ☐ 江苏 ☐ 江西 ☐ 吉林 ☐ 辽宁 ☐ 内蒙古
☐ 宁夏 ☐ 青海 ☐ 山西 ☐ 陕西 ☐ 山东 ☐ 上海
☐ 四川 ☐ 天津 ☐ 新疆 ☐ 西藏 ☐ 云南 ☐ 浙江
☐ 香港 ☐ 澳门 ☐ 台湾

Many Thanks Again!

如果您有任何疑问或建议, 非常欢迎联系我们:

E-mail: nceonline@163.com or Yuhua.Hu@education.ed.ac.uk

16/08/03

Questionnaire 01 (2003)

How to complete the questionnaire: If it is a multiple choice question, please mark in the small checkbox beside the item you choose. Most questions can only have one choice, however, the questions that are specifically indicated with 'Please mark all appropriate' can have more than one choice. If it is a question that asks you to fill in something, please write down your responses in the blank boxes provided.

Thank you very much for your assistance!

Please answer Question 1- 5 on the basis of your computer experience over the past few months prior to your study at this university.

1. **Do you have a computer or Internet connection at home? If yes, please tick 'Yes' and indicate how often you can access them; if no, please tick 'No' and then go directly to Q2.**

	Computer Yes☐ No☐	The Internet Yes☐ No☐
I can access it whenever I want.	☐	☐
I can access it for a limited time every day/week.	☐	☐
I can only access it with permission.	☐	☐
I can't access it at all.	☐	☐

2. **If you can access a computer at home or elsewhere, how often, on average, do you use it for your study?**

Every day ☐ Several times/week ☐ Once/week ☐ Monthly ☐ Very rarely or never ☐

3. **If you can access the Internet at home or elsewhere, approximately how many hours a WEEK do you spend on it for private or recreational purposes?**

10 or more hours ☐ 7-9 hours ☐ 5-6 hours ☐ 3-4 hours ☐ 1-2 hours ☐ 0 hours ☐

4. **If your answer to Q3 is more than 0 hours, which of the following do you often use recreationally? (Please mark all appropriate)**

Chat ☐ E-mail ☐ Downloading files (eg music) ☐ Shopping online ☐ Banking or similar business online ☐ Surfing websites ☐ Games ☐

5. **Please indicate how well you can use the following applications on a computer.**

	Very Competent	Competent	I'd need some help	I've never used it
Word Processor, eg. Writing an well-formatted essay with Word	☐	☐	☐	☐
Web browser, eg. Using Internet Explorer to browse for information	☐	☐	☐	☐
Email, eg. Using 163 or Hotmail to send and receive emails	☐	☐	☐	☐
Forum/Chatroom, eg. Using MSN to chat with other people online	☐	☐	☐	☐
Presenation, eg. Using Powerpoint to design electronic slides	☐	☐	☐	☐
Webpage Design, eg. Using Dreamweaver/HTML to design web pages	☐	☐	☐	☐
Image **Editing**, eg. Using Photoshop to resize or change brightness of pictures	☐	☐	☐	☐

6. **If you are living in a university dormitory, do you have a computer? Please indicate which of the following is the closest to your circumstances.**

- ☐ I have a computer all to myself, and I can use it anytime I want.
- ☐ I own a computer, but I also let my roommate(s) use it often, which sometimes restricts my own use.
- ☐ I bought a computer together with someone or some roommates so we share the use of the computer.
- ☐ I don't own a computer, but I can use my friend(s)'/ roommate(s)' or home computer conveniently.
- ☐ I don't own a computer, and have no other convenient access to any computer, but I will be buying one in the near future.
- ☐ I don't own a computer, and have no other convenient access to any computer, neither will I be buying one in the near future.

7. **If you are living in a university dormitory, do you have network connection in your room, and to what degree will you be utilizing the network when at university? Please mark one box only for each sub-section.**

Access to University Intranet or the Internet

- ☐ I can access both the Intranet and the Internet in my room.
- ☐ In my room, I can access the university Intranet only.
- ☐ There's no network connection in my room at all, but I will go to the university computer labs to use the network.

Frequency of Use

- ☐ I'll spend a lot of time using networks at university.
- ☐ I'd like to use the networks for a certain amount of time when it's necessary.
- ☐ I'm not very interested in using networks, so I don't think I will spend much time on them.

8. **How long have you been learning English up till now?**

more than 12 years ☐ | 9-12 years ☐ | 6-9 years ☐ | 3-6 years ☐ | 0-3 years ☐

9. **Before you came to this university, normally how much time would you spend on English study every week (including both time spent on English classes and self-study)?**

More than 10 hours ☐ | 8-10 hours ☐ | 6 – 8 hours ☐ | 4 – 6 hours ☐ | 2 – 4 hours ☐ | 0 – 2 hours ☐

10. **Please indicate which of the following methods you have used for your English study. (please mark all appropriate)**

Printed material ☐ | Audio cassettes ☐ | Video cassettes ☐ | Radio programmes ☐ | Television programmes ☐ | CD-ROMs ☐ | The Internet ☐ | Extracurricular training tutorials or private tutors ☐

11. **Please rate the following English learning activities from the easiest (1) to the most difficult (5). Please write down the number (from 1 to 5) inside the box beside each activity. Please note that, since it is order ranking, there should not be any repeated numbers.**

☐ Memorizing and using new words or phrases ☐ Understanding and using grammar correctly
☐ Listening comprehension ☐ Writing ☐ Speaking

12. **In general, how did you feel about learning English as compared with the other subjects you needed to study?**

☐ I enjoyed it very much. ☐ I somewhat liked it. ☐ No particular feelings towards it. ☐ I somewhat disliked it. ☐ I hated it.

13. **In order to improve our teaching, we would like to know in what ways you prefer to learn, so please indicate how much you agree with the following statements.**

Items	Strongly Agree	Mostly Agree	Neutral	Mostly Disagree	Strongly Disagree
I like assignments which require me to work with two or three classmates.	☐	☐	☐	☐	☐
I pay more attention to the whole picture of something than the details of it.	☐	☐	☐	☐	☐
When I'm in a group, I usually do a lot of talking.	☐	☐	☐	☐	☐
I like to finish one task first and then proceed to the next one, but don't like to work on several tasks at a time.	☐	☐	☐	☐	☐
I'm more concerned about what it is than what it can be or could have been.	☐	☐	☐	☐	☐
I like to learn theories and rules first and then use them to solve problems or explain situation.	☐	☐	☐	☐	☐
I like teachers to draw many graphs or tables on the blackboard to explain things to us.	☐	☐	☐	☐	☐
I like to initiate or organise group/team activities, eg., class picknic.	☐	☐	☐	☐	☐
I can only understand something well after I try it out.	☐	☐	☐	☐	☐
In a study group working on difficult material, I'm very much likely to jump in and contribute ideas.	☐	☐	☐	☐	☐
I prefer courses that emphasize facts or data, but not abstract materials such as concepts or theories.	☐	☐	☐	☐	☐
When I need to complete a learning task, I prefer to do it a new way that I just thought of.	☐	☐	☐	☐	☐
I often have different opinions about things from other people, and like to argue for my opinions.	☐	☐	☐	☐	☐
I don't like lab classes.	☐	☐	☐	☐	☐
In class, I often feel I can't participate in group activities very well.	☐	☐	☐	☐	☐
I'd feel very happy if the English teacher asked us to write something using our imagination rather than describe something in our daily life.	☐	☐	☐	☐	☐
I often doubt the correctness of the teachers or the textbooks.	☐	☐	☐	☐	☐

When studying in a group, I usually like to sit back and listen to other people's discussion and am ready to fulfil the task through whatever ways they have agreed to try.	☐	☐	☐	☐	☐
Normally I can quickly understand theories or rules even if there are no lab classes for them.	☐	☐	☐	☐	☐
In class, I learn better with groups than on my own.	☐	☐	☐	☐	☐
I'm not very good at discovering the problematic or faulty side of things, e.g. if there's a half glass of water, I'd be more likely to think half of the glass is filled with water, but not that half of the glass is empty.	☐	☐	☐	☐	☐
Too often I act and talk without thinking much first.	☐	☐	☐	☐	☐
Usually I remember better if I hear a story on the radio than if I read this same story on a newspaper/magazine.					
When I do a job, my usual approach is to start from the beginning and follow a procedure step by step.	☐	☐	☐	☐	☐
I like to get things done in those old tried ways.	☐	☐	☐	☐	☐
When reading an English article outside classroom, I need to understand every word and sentence in order to understand the whole article very well.	☐	☐	☐	☐	☐
I like reading detective novels very much because I like trying to work out who did what through the bits of clues here and there in the novels.	☐	☐	☐	☐	☐
I like to try to use the new words or phrases I've just learned in my writings.	☐	☐	☐	☐	☐
When reading an interesting article in English, I prefer to read along without looking up all the new words till the end when I've grasped the main idea.	☐	☐	☐	☐	☐
I'd rather someone tells me how to complete a task step by step than having to figure out how to do it myself.	☐	☐	☐	☐	☐
If possible, I'd like to try some more adventurous sports, such as bumgee jump or parachuting.	☐	☐	☐	☐	☐
I enjoy challenging myself with slightly more difficult learning tasks than what I already can do.	☐	☐	☐	☐	☐
I like to first arrange the things I need to do on a day according to their importance and then get them done one by one.	☐	☐	☐	☐	☐
I like to learn a lot of examples or cases first, and try to draw out of them some underpinning rules or theories.	☐	☐	☐	☐	☐
I like to try new things out immediately, eg., a new walkman, without reading the instructions in the manual..	☐	☐	☐	☐	☐
I learn in fits and starts, but not at a regular pace.	☐	☐	☐	☐	☐
Even if an English article is about something I'm very interested in, I often feel very frustrated if it has many new words in it, and may even give up reading it in the end.	☐	☐	☐	☐	☐
When it comes to an uncertain situation, I usually trust my reasoning more than my feeling.	☐	☐	☐	☐	☐
I prefer to work on my own.	☐	☐	☐	☐	☐
When trying to memorize a new word, I find it easier to remember it by looking at the word several times than listening to it (e.g. on a cassette tape) for a few times.	☐	☐	☐	☐	☐

14. The following statements are about learning and computer use. Please indicate to what extent you agree with them.

ITEMS	Totally agree	Mostly agree	Neutral	Mostly disagree	Totally disagree
Our classes would become more interesting if computers were used in our classrooms.	☐	☐	☐	☐	☐
I feel comfortable with the use of computer technologies in my study	☐	☐	☐	☐	☐
Learning via computer/the Internet on my own is acceptable to me	☐	☐	☐	☐	☐
I'd prefer to talk to a teacher face to face instead of communicating through a computer	☐	☐	☐	☐	☐
I would like to study with a computer, even if it is complicated	☐	☐	☐	☐	☐
I prefer to communicate with my classmates through chatrooms or forums on the In ternet rather than in the classroom where I have to face many people	☐	☐	☐	☐	☐
CD-ROM software for English study is more helpful than printed materials	☐	☐	☐	☐	☐
I like being taught in a classroom setting with face-to-face contact	☐	☐	☐	☐	☐

15. **Please indicate how much you think the following items can help you learn English? (If you have never used some items, please predict their usefulness according to your own understanding.)**

ITEMS	Very helpful	Helpful	Unsure	Not very helpful	Not helpful at all
E-mailing in English to friends in some other countries	☐	☐	☐	☐	☐
Chatting with friends in English on the Internet	☐	☐	☐	☐	☐
Listening to the English **audio materials** on the internet, eg. Songs	☐	☐	☐	☐	☐
Watching English **movies** on computers	☐	☐	☐	☐	☐
Taking **self tests** or simulated tests on computers or networks	☐	☐	☐	☐	☐
Participating in **discussion forums** where everyone writes in English	☐	☐	☐	☐	☐
Surfing the Web that provides information in English	☐	☐	☐	☐	☐
Taking **online English courses** from an institution or organisation	☐	☐	☐	☐	☐

16. **How important do you think the following things which NCE Online you are going to use may enable you to do for your English learning?**

ITEMS	Very important	Important	Unsure	Not very important	No importance at all
I can communicate with fellow students or peers in other countries	☐	☐	☐	☐	☐
I can study English whenever I prefer.	☐	☐	☐	☐	☐
I can study English wherever convenient, eg., at home when on holiday.	☐	☐	☐	☐	☐
I can get more effective and/or frequent instructions or feedback fro m teachers than what I normally get in the classroom.	☐	☐	☐	☐	☐
I can have more freedom in managing my own study pace and cont ent.	☐	☐	☐	☐	☐
I can have more opportunities for discussing or working with other stud ents on some difficult problems, tasks or projects.	☐	☐	☐	☐	☐
I can easily access a wide range of sources of information and kno wledge about English through the online NCE.	☐	☐	☐	☐	☐

Now please tell us something about yourself.

17. **Your Year** 1st Year ☐ 2nd Year ☐ 3rd Year ☐ 4th/5th Year ☐ Postgraduate ☐

18. **Your gender** Female ☐ Male ☐

19. **Your Age (please write in the** ☐ **Your Student ID No. (please write in the** ☐

20. **What is your current English proficiency level?**

Level 1 ☐ Level 2 ☐ Level 3 ☐ Level 4 ☐ Level 5/6 ☐

21. **Which College are you in (please choose)?**

22. **Where is your hometown province/city (please choose)?**

Many Thanks Again!

If you have any enquiries or suggestions
please contact us by E-mail: nceonline@163.com; Yuhua.Hu@education.ed.ac.uk

关于网络环境 NCE Online 辅助英语学习的调查问卷

如何填写该问卷： 如果是选择题，请在您所选的选项旁边或下面的小框内打一个叉（如图所示：☒），请注意有些题可有多项选择；如果是需要您填写数字或文字的问题，请将您的回答直接填写在空框内。您为该问卷提供的所有信息将会完全匿名化，仅为教学研究所用，并将受到严格保密。

Thank You Very Much for Your Kind Assistance!

请根据您在回校之前几个月之内的使用电脑的经历来回答第 1 到第 5 个问题。

1. **您在自己的家中是否有电脑及因特网？如果有，请在答案‘有’右边的框内打叉，并且选择您对电脑及因特网的使用情况；如果没有，请在答案‘无’ 右边的框内打叉然后直接去第 2 题。**

使　用　情　况	电脑 有☐ 无☐	因特网 有☐ 无☐
我可以在任何时候使用	☐	☐
我只能每天或每周使用有限的一段时间	☐	☐
我只有在得到允许（如父母允许）的情况下才能使用	☐	☐
我完全不能使用	☐	☐

2. **如果您能够在家里，学校里，或其它地方使用电脑，那么您一般会多么频繁地使用电脑来辅助您的学习？**

每天 ☐　每周数次 ☐　每周一次 ☐　每月一次 ☐　很少或几乎没有 ☐

3. **如果您能够在家里，学校里，或其它地方使用因特网，那么您一周大致会花多长时间为个人休闲娱乐目的而上网？**

10 个小时或者 10 个小时以上 ☐　7-9 个小时 ☐　5-6 个小时 ☐　3-4 个小时 ☐　1-2 个小时 ☐　0 个小时 ☐

4. **如果您对第 3 题的回答多于 0 个小时，那么您将因特网主要用于以下哪些用途？（*可有多项选择*）**

网上聊天 ☐　电子邮件 ☐　下载文件，比如音乐或程序 ☐　网上购物或订货 ☐　网上银行或其它类似网上商务 ☐　网上冲浪 ☐　玩游戏 ☐

5. **请选择您对下列一些电脑软件的应用的熟悉程度。**

计　算　机　的　应　用	非常有信心	有信心	我会需要一些帮助	从未使用过
Word，比如用 Word 写一篇格式整齐漂亮的文章	☐	☐	☐	☐
网页浏览器（Web Browser），比如用类似 Google 的搜索工具查找信息	☐	☐	☐	☐
电子邮件 (Email)，比如用 163 或者 Hotmail 的邮箱来收发信件	☐	☐	☐	☐
留言板或聊天室，比如用 OICQ 或者 MSN 在网上和别人聊天	☐	☐	☐	☐
Powerpoint，比如用微软的 Powerpoint 制作幻灯片以便在课堂上作演示	☐	☐	☐	☐
网页制作，比如用 Dreamweaver or HTML 语言自己设计网页	☐	☐	☐	☐
图形编辑，比如用 Photoshop 之类的软件改变照片的大小及色彩	☐	☐	☐	☐

6. **如果您住在学校的宿舍里，请问您的房间里有电脑吗？请在下列选项中选择与您的情况最接近的一项。**

☐ 我有一台完全属于我自己的电脑，我可以在任何时候使用它。
☐ 我有一台电脑，不过我经常借给我的同学使用，所以有时候我自己的使用反而受限制了。
☐ 我和别人合买了一台电脑，所以我们分享使用这台电脑。
☐ 我自己没有电脑，不过我可以比较方便地使用同寝室同学的，朋友的或者自己家里的电脑。
☐ 我现在没有电脑，也不能使用别人的电脑，不过我会在不久的将来买一台电脑。
☐ 我现在没有电脑，也无法使用别人的电脑，近期也不会购买电脑。

7. 如果您住在学校的宿舍里，请问您的房间里有校网或者因特网的接入吗？同时请选择在校期间您会在多大程度上利用网络。

校网或者因特网	使用频率
☐ 我可以在房间里根据我自己需要使用校网或者因特网。	☐ 在校期间，我会花大量的时间使用网络（校网或因特网）
☐ 在我的房间里，我只能进入校网。	☐ 我会在必需的时候花一定的时间利用网络。
☐ 我的房间里没有任何网络的接入，不过我会去学校的机房上网。	☐ 我对上网不感兴趣，所以不会花多少时间使用校网或因特网。

8. 如果您已经或正在使用我校的网络课件NCE Online (New College English Online)，请问您通常是在何处上网使用该课件的？并请说明您是通过哪一种技术联网的。（*可有多项选择*）

	拨号上网（Modem）	局域网/宽带网（LAN）
☐ 自己家里的电脑	☐	☐
☐ 我寝室里的电脑	☐	☐
☐ 学校电脑房或实验室里的电脑		

9. 在过去的一个学年中，您大概*每周*花多长时间利用NCE Online？

6 个小时或者更多	4-6 个小时	2-4 个小时	1-2 个小时	少于 1 个小时	0 小时
☐	☐	☐	☐	☐	☐

10. NCE Online 有 4 个主要组成部分，请将您花在这 4 个部分上的时间从最短（1）到最长（4）排列顺序。请将数字（从 1 到 4）直接填写在小框内。

☐ NCE ☐ English For Fun ☐ Online Community ☐ Reference

11. 如果您能自由选择的话，您会最喜欢按下列哪种方式学习英语？

完全通过 NCE Online 自学英语	NCE Online 为主，课堂学习为辅	NCE Online 与课堂学习基本等量	课堂学习为主，NCE Online 为辅	只要有面对面的课堂教学就够了
☐	☐	☐	☐	☐

12. 请选择您对以下说法的认可程度。

	完全同意	基本同意	中立（无意见）	基本不同意	完全不同意
我很喜欢这种通过电脑与网络学习英语的方式	☐	☐	☐	☐	☐
我喜欢 NCE Online 的外观，如它的视窗的形状，控制按钮的颜色，等等	☐	☐	☐	☐	☐
我喜欢 NCE Online 的各个组成部分的整体框架布局	☐	☐	☐	☐	☐
我觉得 NCE Online 使英语学习变得更有意思了	☐	☐	☐	☐	☐
我觉得 NCE Online 的网页导航很清晰明了，比如很容易找到我需要的网页，不会在多个网页之间切换的时候迷失方向	☐	☐	☐	☐	☐
与在课堂上发表意见或与同学交流相比，我更喜欢在 NCE Online 与其他同学匿名讨论或聊天	☐	☐	☐	☐	☐
NCE Online 让我们能在网上查看，递交作业，我非常喜欢这一点	☐	☐	☐	☐	☐
与在课堂里相比，我觉得通过 NCE Online 我能与老师有更容易更有效的交流	☐	☐	☐	☐	☐
我觉得 NCE Online 比其它书面辅导材料更有效的帮助了我的学习	☐	☐	☐	☐	☐
我非常喜欢 NCE Online 提供的课外学习资源，比如影视片段，单词游戏等	☐	☐	☐	☐	☐

13. 您觉得以下 NCE Online 所有的特征对您的英语学习产生了多大的帮助？

NCE Online 的特点	非常有帮助	有些帮助	不清楚	不太有帮助	完全没有帮助
提供额外的听力材料，便于我课外加强练习	☐	☐	☐	☐	☐
所有课本上的阅读文章都在网上，所以我不一定总要背着沉重的书本进行学习	☐	☐	☐	☐	☐
绝大部分阅读文章都配有标准的英语朗读，所以我可以用耳朵’听’一篇文章的内容而不需要用眼睛’读’	☐	☐	☐	☐	☐
我可以查看主要课文中单词或句子的翻译	☐	☐	☐	☐	☐
做各种练习的时候，我可以给自己设置定时器	☐	☐	☐	☐	☐
我能够查看我的学习纪录，因此知道我已经完成了什么或者需要在哪个方面花更多的时间	☐	☐	☐	☐	☐
NCE Online 的单词检索（Glossary）不仅提供单词的发音，解释，而且给出了相应的例句以及例句所在的课本，单元与文章	☐	☐	☐	☐	☐
在 NCE Online 的’Speaking’部分里，我可以用’Role Play’功能来练习口语	☐	☐	☐	☐	☐
提供了学生写的样品作文，并且对其中的错误作了详细的解释与纠正	☐	☐	☐	☐	☐

NCE Online 的特点	非常有帮助	有些帮助	不清楚	不太有帮助	完全没有帮助
NCE Online 提供的参考工具，如语法解释	□	□	□	□	□
NCE Online 让我有能够和老师单独或个别交流的机会	□	□	□	□	□
通过 NCE Online，我可以从老师那里得到更快更有针对性的反馈或帮助	□	□	□	□	□
我可以在 NCE Online 上与其他同学用英语就各种话题进行讨论	□	□	□	□	□

14. 对于实现下列的各个学习目标而言，请问您认为 NCE Online 有多重要？

学习目标	非常重要	比较重要	有点重要	不太重要	无任何重要性	不清楚
学习掌握新单词，词组或习惯用语	□	□	□	□	□	□
增加与他人交流的机会，提高口语水平	□	□	□	□	□	□
理解与掌握更多的语法知识	□	□	□	□	□	□
提高阅读理解的能力	□	□	□	□	□	□
提高写作能力	□	□	□	□	□	□
获取更多与学习相关的信息以资源	□	□	□	□	□	□
更多机会与其他同学合作完成学习任务	□	□	□	□	□	□
更自主地掌握学习的时间与地点，如在家里进行系统地学习	□	□	□	□	□	□
提高独立思考学习的能力	□	□	□	□	□	□

15. 您可能在使用 NCE Online 的过程中碰到过如下的问题，请选择说明您对各项的认可程度。

	完全同意	基本同意	中立（无意见）	基本不同意	完全不同意
我担心我没能很好地利用 NCE Online，因为我不是很有技术头脑的那种人	□	□	□	□	□
在使用 NCEOnline 的时候，我经常碰到一些我自己无法解决的电脑技术方面的问题	□	□	□	□	□
当我碰到问题的时候，我找不到比较有技术头脑的朋友或同学可以帮助我	□	□	□	□	□
大多数情况下，我没有能够从网站维护人员那里得到及时有效的技术支持	□	□	□	□	□
每当因为某些技术问题我的学习不能顺利进行的时候，我就会觉得很沮丧	□	□	□	□	□
总的来说，我对使用电脑有点恐惧症	□	□	□	□	□
我认为登录 NCE Online 之前的动画网页的播放时间太长了	□	□	□	□	□
在使用 NCE Online 的时候，我不喜欢它的视窗占据我的整个电脑桌面视窗，因为如果我想同时使用电脑的其它功能的时候(如想用 WORD 写文章)我不知道如何才能切换到其它窗口	□	□	□	□	□
有时候影音文件的下载时间太长了	□	□	□	□	□
听力材料或影视文件的声音或视像效果不太好	□	□	□	□	□

16. 为了让 NCE Online 能够在将来提供更有效的学习材料，创造一个更好的学习环境，请指出您对下列各种资源的需要程度.

各类资源	非常需要	比较需要	有点需要	不需要	我不清楚这句话的意思
更多的听力练习	□	□	□	□	□
更多的词汇练习	□	□	□	□	□
更多的阅读理解练习	□	□	□	□	□
更多的写作技能方面的训练	□	□	□	□	□
更多的发音发面的训练，比如让我能够把我自己的朗读录音然后与原文标准的朗读进行比较	□	□	□	□	□
更多的与每个单元的主题相关的有用信息，比如，如果有个单元是与旅游相关的，那么可以提供一些有趣的旅游方面的网站的链接	□	□	□	□	□
更多的口语对话练习	□	□	□	□	□
更有效的参考工具，比如有图片或动画的词典，以便记忆单词	□	□	□	□	□
老师组织更多的网上小组活动或与同学合作的机会	□	□	□	□	□
设置一个专门的答疑板，这样学生可以更集中地向老师询问，也能更便捷地从其他同学的答疑留言中找到自己需要的信息	□	□	□	□	□
当我想比较全面地了解一个单词或词组的用法的时候，NCE Online 能提供一种工具让我能查阅英文原版的书刊杂志中用到了该词或词组的例句	□	□	□	□	□
有一个类似于 Microsoft Outlook 或商务通的电子记事本，便于我记录安排每	□	□	□	□	□

天，一周，一个月，甚至一个学期的学习任务					
当我在 NCE 中学习的时候，有一个我可以写笔记或做纪录的地方	☐	☐	☐	☐	☐
各 类 资 源	非常需要	比较需要	有点需要	不需要	我不清楚这句话的意思
在有些网页上提供一个’打印’按钮，以便我打印某些文章或我做的练习	☐	☐	☐	☐	☐
更多的’English For Fun’材料	☐	☐	☐	☐	☐
更多 NCE Online 以外的外语学习资源，比如其它的有益于学英语的网站	☐	☐	☐	☐	☐
更多的技术支持与帮助	☐	☐	☐	☐	☐

接下来请告知一些您的个人情况

17. 您的年级 1 年级 ☐ 2 年级 ☐ 3 年级 ☐ 4 或 5 年级 ☐ 研究生或以上 ☐

18. 您的性别: 女 ☐ 男 ☐

19. 您的学号（请填写 ☐ **您的年龄（请填写** ☐

20. 您现在的英语级别为: 一级 ☐ 二级 ☐ 三级 ☐ 四级 ☐ 五级或六级 ☐

21. 您到目前为止一共已经学了多少年的英语?

多于 12 年 ☐ 9-12 年 ☐ 6-9 年 ☐ 3-6 年 ☐ 0-3 年 ☐

22. 您在来这所大学之前，一般情况下每周在英语学习上花多少时间（包括上课与自习时间）?

10 个小时以上 ☐ 8 --10 小时 ☐ 6 – 8 个小时 ☐ 4 – 6 个小时 ☐ 2 – 4 个小时 ☐ 0 – 2 个小时 ☐

23. 到目前为止，您已经使用了以下哪些途径学习英语？（*可有多项选择*）

书本或者其它印刷材料 ☐ 录音磁带 ☐ 录像带 ☐ 广播节目 ☐ 电视节目 ☐ 电脑光盘或其它软件 ☐ 因特网 ☐ 学校正常英语课以外的补习班或加强班或私人家教 ☐

24. 请将下面英语学习的 5 个方面从最容易（1）到最困难（5）排列顺序。请将数字（从 1 到 5）直接填写在下面的灰框内。

☐ 记忆与使用新的单词及词组 ☐ 理解及正确使用语法 ☐ 听力理解 ☐ 写作 ☐ 口语

25. 总的来说，与其它学科的学习相比，您对英语学习的感觉如何（请选择）?

我非常喜欢学习英语 ☐ 我比较喜欢学习英语 ☐ 既谈不上喜欢也没有很不喜欢 ☐ 我不喜欢学英语 ☐ 我讨厌学英语 ☐

26. 您所在的学院或系的名称（请选择）:

☐ 经济学院	☐ 法学院	☐ 电气工程学院	☐ 机械与能源工程学院	☐ 信息科学与工程学院
☐ 人文学院	☐ 医学院	☐ 建筑工程学院	☐ 材料与化学工程学院	☐ 计算机科学及技术学院
☐ 管理学院	☐ 药学院	☐ 生命科学学院	☐ 环境与资源学院	☐ 生物医学工程与仪器科学学院
☐ 教育学院	☐ 理学院	☐ 动物科学学院	☐ 农业与生物技术学院	☐ 生物系统工程与食品科学学院
☐ 外国语学院	♣如果你不属于上述的任何学院，请在横线上填写你的学院名称：_____			

27. 您所居住的国内的城/镇的名称（请选择）:

☐ 安徽	☐ 北京	☐ 福建	☐ 甘肃	☐ 广东	☐ 广西	☐ 香港
☐ 贵州	☐ 海南	☐ 河北	☐ 黑龙江	☐ 河南	☐ 湖北	☐ 澳门
☐ 湖南	☐ 江苏	☐ 江西	☐ 吉林	☐ 辽宁	☐ 内蒙古	☐ 台湾
☐ 宁夏	☐ 青海	☐ 山西	☐ 陕西	☐ 山东	☐ 上海	
☐ 四川	☐ 天津	☐ 新疆	☐ 西藏	☐ 云南	☐ 浙江	

Many Thanks Again!

如果您有任何疑问或建议，非常欢迎联系我们:

E-mail: nceonline@163.com or Yuhua.Hu@education.ed.ac.uk

Questionnaire 02 (Pilot)

How to complete the questionnaire: If it is a multiple choice question, please mark in the small checkbox beside the item you choose. Most questions can only have one choice, however, the questions that are specifically indicated with 'Please mark all appropriate' can have more than one choice. If it is a question that asks you to fill in something, please write down your responses in the blank boxes provided.

Thank you very much for your assistance!

Please answer Question 1- 5 on the basis of your computer experience over the past few months prior to your study at this university.

1. **Do you have a computer or Internet connection at home? If yes, please tick 'Yes' and indicate how often you can access them; if no, please go directly to Q2.**

	Computer Yes☐ No☐	The Internet Yes☐ No☐
I can access it whenever I want.	☐	☐
I can access it for a limited time every day/week.	☐	☐
I can only access it with permission.	☐	☐
I can't access it at all.	☐	☐

2. **If you can access a computer at home or elsewhere, approximately how often do you use it for your study?**

Daily ☐ Several times a week ☐ Weekly ☐ monthly ☐ Rarely or never ☐

3. **If you can access the Internet at home or elsewhere, approximately how many hours a WEEK do you spend on it for private or recreational purposes?**

10 or more hours ☐ 7-9 hours ☐ 5-6 hours ☐ 3-4 hours ☐ 1-2 hours ☐ 0 hours ☐

4. **If your answer to Q3 is more than 0 hours, which of the following do you often use recreationally? (Please mark all appropriate)**

Chat ☐ E-mail ☐ Downloading files (eg music) ☐ Shopping online ☐ Banking or similar business online ☐ Surfing websites ☐ Games ☐

5. **Please indicate how well you can use the following applications on a computer.**

	Very Competent	Competent	I'd need some help	I've never used it
Word Processor, eg. Writing an well-formatted essay with Word	☐	☐	☐	☐
Web browser, eg. Using Internet Explorer to browse for information	☐	☐	☐	☐
Email, eg. Using 163 or Hotmail to send and receive emails	☐	☐	☐	☐
Forum/Chatroom, eg. Using MSN to chat with other people online	☐	☐	☐	☐
Presenation, eg. Using Powerpoint to design electronic slides	☐	☐	☐	☐
Webpage Design, eg. Using Dreamweaver/HTML to design web pages	☐	☐	☐	☐
Image Editing, eg. Using Photoshop to resize or change brightness of pictures	☐	☐	☐	☐

6. **If you are living in a university dormitory, do you have a computer? Please indicate which of the following is the closest to your circumstances.**

- ☐ I have a computer all to myself, and I can use it anytime I want.
- ☐ I own a computer, but I also let my roommate(s) use it often, which sometimes restricts my own use.
- ☐ I bought a computer together with someone or some roommates so we share the use of the computer.
- ☐ I don't own a computer, but I can use my friend(s)'/ roommate(s)' or home computer conveniently.
- ☐ I don't own a computer, and have no other convenient access to any computer, but I will be buying one in the near future.
- ☐ I don't own a computer, and have no other convenient access to any computer, neither will I be buying one in the near future.

7. **If you are living in a university dormitory, do you have network connection in your room, and to what degree will you be utilizing the network when at university? Please mark one box only for each sub-section.**

Access to University Intranet or the Internet

- ☐ I can access both the Intranet and the Internet in my room.
- ☐ In my room, I can access the university Intranet only.
- ☐ There's no network connection in my room at all, but I will go to the university computer labs to use the network.

Frequency of Use

- ☐ I'll spend a lot of time using networks at university.
- ☐ I'd like to use the networks for a certain amount of time when it's necessary.
- ☐ I'm not very interested in using networks, so I don't think I will spend much time on them.

8. **If you have been uainf NCE Online, how do you access it most time---where is the computer and how is it connected to the network? (Please mark all appropriate)**

	Modem	LAN
☐ From a computer at home	☐	☐
☐ From a computer in my dormitory room.	☐	☐
☐ From a computer in the university computer labs.		

9. **How much time have you been spending on NCE Online EVERY WEEK during the past academic year?**

6 or more hours	4-6 hours	2-4 hours	1-2 hours	Less than 1 hour	0 hours
☐	☐	☐	☐	☐	☐

10. **Please rank NCE Online's four modules according to the time you spend on them from the shortest (1) to the longest (4).**

☐ NCE ☐ English For Fun ☐ Online Community ☐ Reference

11. **If you could choose freely, which of the following methods would you like most for your English study at university?**

- ☐ complete self-study through NCE Online
- ☐ Mainly through NCE Online, together classroom learning
- ☐ Approximately through the same amount of NCE Online and classroom learning
- ☐ Mainly face-to-face classroom learning, together with NCE Online
- ☐ Face-to-face classroom learning only

12. **Please indicate how much you agree with the following statements.**

ITEMS	Strongly Agree	Mostly Agree	Neutral	Mostly Disagree	Strongly Disagree
I like the idea of learning English online through computers and networks.	☐	☐	☐	☐	☐
I like the appearance of NCE Online interface, eg., the colour and shape.	☐	☐	☐	☐	☐
I like the overall structure of the components in NCE Online.	☐	☐	☐	☐	☐
I think NCE Online has made my English study more interesting.					
I find it very easy to navigate around the whole environment.	☐	☐	☐	☐	☐
I prefer to communicate with other students anonymously in NCE Online rather than in the classroom.	☐	☐	☐	☐	☐
I like it that we can view, work on and submit assignments in NCE Online.	☐	☐	☐	☐	☐
I think I can communicate with the teacher much more easily and efficiently in NCE Online than in the classroom.	☐	☐	☐	☐	☐
I think NCE Online helped with my study more effectively than printed materials.	☐	☐	☐	☐	☐
I enjoy the additional multimedia materials provided by NCE, such as Word Games, and movie clips.	☐	☐	☐	☐	☐

13. **Please indicate how helpful you think the following NCE Online features have been for your English study? (Please mark one box only for each item)**

ITEMS	Very Helpful	Helpful	Unsure	Not Very Helpful	Not Helpful at all
Access to in-class listening materials any time outside the classroom	☐	☐	☐	☐	☐
Being able to access all the reading texts without having to carry the textbooks around	☐	☐	☐	☐	☐
Most of the reading texts are read out by native speakers so that I can 'listen' to a text rather than 'reading' it	☐	☐	☐	☐	☐
Being able to view the translation of each sentence of the major texts	☐	☐	☐	☐	☐
Being able to set the timer for myself for whatever exercise I do	☐	☐	☐	☐	☐
Being able to view my study record so that I know how much I have done and what I should spend more time on	☐	☐	☐	☐	☐
The Glossary provides not only pronunciation and explanation of a word, but also the example sentences from the textbooks.	☐	☐	☐	☐	☐

Being able to have role-play practice in the system.	☐	☐	☐	☐	☐
Being given sample writings and shown the errors in them and how they are corrected.	☐	☐	☐	☐	☐
The referencing tools, eg., the grammar explanations	☐	☐	☐	☐	☐
Being able to communicate with the teacher individually.	☐	☐	☐	☐	☐
Being able to get more specific feedback/help from the teacher more quickly.	☐	☐	☐	☐	☐
Being able to discuss on different topics with other students in English	☐	☐	☐	☐	☐

14. Please indicate how important you feel NCE Online has been for you to achieve the following learning objectives?

NCE Online	Very Important	Important	Unsure	Not Very Important	No Importance at all
Acquiring new vocabulary, more useful phrases and idioms	☐	☐	☐	☐	☐
Improving my speaking competence through more communication opportunities with other students	☐	☐	☐	☐	☐
Understanding and learning more grammar knowledge	☐	☐	☐	☐	☐
Improving my reading comprehension ability	☐	☐	☐	☐	☐
Improving my writing	☐	☐	☐	☐	☐
Obtaining more study-related information and resources	☐	☐	☐	☐	☐
More opportunities to collaborate with other students	☐	☐	☐	☐	☐
More flexibility of study time and place, eg. study at home on holidays	☐	☐	☐	☐	☐
Improve my ability to study and reflect independently	☐	☐	☐	☐	☐

15. You may have encountered the following problems /difficulties when using NCE Online. Please indicate how much you agree with the following statements.

Using NCE Online	Strongly Agree	Mostly Agree	Neutral	Mostly Disagree	Strongly Disagree
I'm worried that I can't use NCE Online properly because I'm not very technically-minded.	☐	☐	☐	☐	☐
I often encounter technical problems which I don't know what to do.	☐	☐	☐	☐	☐
I can't find many technically-minded friends/classmates to help me with technical problems.	☐	☐	☐	☐	☐
I can't get prompt technical support from the website maintenance staff or the university.	☐	☐	☐	☐	☐
I feel really frustrated when my study couldn't proceed smoothly because of the technical problems I can't resolve.	☐	☐	☐	☐	☐
In general, I have a phobia for the use of computers.	☐	☐	☐	☐	☐
I think the animation played before the NCE Online login page is too long.	☐	☐	☐	☐	☐
I don't like the fact that the NCE window takes up the whole desktop screen so that I don't know how to switch to other windows if necessary, eg., when I want to write up something using Word and work on NCE Online at the same time.	☐	☐	☐	☐	☐
Sometimes the downloading time of the audio or video files is too long.	☐	☐	☐	☐	☐
The sound or image quality of the listening materials or the video clips is not very good.	☐	☐	☐	☐	☐

16. The following is what NCE Online may be able to offer in the future. Please indicate how much you would like them for you English study?

Resources and Facilities	Highly Desirable	Desirable	Not Desirable	I don't understand this item
More listening exercises	☐	☐	☐	☐
More vocabulary exercises	☐	☐	☐	☐
More reading comprehension exercises	☐	☐	☐	☐
More writing skills training	☐	☐	☐	☐
More pronunciation training exercises	☐	☐	☐	☐
More helpful information related to the topic of each unit, eg., if a unit is about travelling, provide hyperlinks to websites about tourism.	☐	☐	☐	☐
More oral English practice	☐	☐	☐	☐
More effective referencing tools, such as a picture dictionary to help us memorize certain new words.	☐	☐	☐	☐
Teachers organize more group or collaboration activities online.	☐	☐	☐	☐
Set up an FAQ board so that students can ask questions about English knowledge easily or learn from other students' questions and answers.	☐	☐	☐	☐
When I'm trying to fully understand the meaning and usage of a word/phrase, I would like NCE Online to have a tool to show me how	☐	☐	☐	☐

this word/phrase has been used in authentic writings (eg., novels).				
A calendar, similar to electronic diaries such as Microsoft Outlook, where I can organise my tasks or events for my English study.	☐	☐	☐	☐
A space where I can write notes while I'm studying on NCE Online.	☐	☐	☐	☐
A 'Print' button which enables me to print off some texts or some exercises.	☐	☐	☐	☐
More English For Fun materials	☐	☐	☐	☐
More external resources on English learning, e.g. some other websites good for learning English such as	☐	☐	☐	☐
More technical support	☐	☐	☐	☐

17. **Your Year:** 1st Year ☐ 2nd Year ☐ 3rd Year ☐ 4th/5th Year ☐ Postgraduate ☐

18. **Your gender:** Female ☐ Male ☐

19. **Your Student ID** ☐ **Your Ag** ☐

20. **Your English Level now:** 1st ☐ 2nd ☐ 3rd ☐ 4th ☐ 5th/6th ☐

21. **How long have you been learning English up till now? (please mark one option)**

more than 12 years	9-12 years	6-9 years	3-6 years	0-3 years
☐	☐	☐	☐	☐

22. **Normally how much time do you spend on English study every week approximately (including both time spent on English classes and self-study)? (Please mark one option)**

More than 10 hours	8 – 10 hours	6 – 8 hours	4 – 6 hours	2– 4 hours	0-2 hours
☐	☐	☐	☐	☐	☐

23. **Please indicate which of the following methods you have used for your English study. (please mark all appropriate)**

Printed material	Audio cassettes	Video cassettes	Radio programmes	Television programmes	CD-ROMs	The Internet	Extracurricular training tutorials or private tutors
☐	☐	☐	☐	☐	☐	☐	☐

24. **Please rate the following English learning activities from the easiest (1) to the most difficult (5). Please write down the number (from 1 to 5) inside the box beside each activity. Please note that, since it is order ranking, there should not be any repeated numbers.**

☐ Memorizing and using new words or phrases ☐ Understanding and using grammar correctly
☐ Listening comprehension ☐ Writing ☐ Speaking

25. **In general, how do you feel about learning English as compared with the other subjects you need to study?**

I enjoy it very much ☐ I somewhat like it ☐ I don't have particular feelings towards it ☐ I somewhat dislike it ☐ I hate it ☐

26. **Which College are you in?**

27. **Where is your hometown province or city?**

28. **Please feel free to write down what else you expect NCE Online to offer for your English study, or any comments you want to make:**

Many Thanks Again!

If you have any enquiries or suggestions
please contact us by E-mail: nceonline@163.com; Yuhua.Hu@education.ed.ac.uk

电脑、网络以及 NCE Online 辅助英语学习

调 查 问 卷

如何填写该问卷:

如果是选择题，请在您所选的选项旁边或下面的小框内打一个叉（如图所示：☒），请注意有些题特别注明了可有多项选择；没有特别注明的选择题则应为单项选择。如果是需要您填写数字的问题，请将数字直接填写在空框内。您为该问卷提供的所有信息将会完全匿名化，仅为教学研究所用，并将受到严格保密。

Thank You Very Much for Your Kind Assistance!

下列第 1 至 9 题是关于您在日常生活中的电脑使用情况的问题:

1. **如果您住在学校的宿舍里，请问您的房间里有自己的电脑吗？请在下列选项中选择与您的情况最接近的一项。**

☐ 有，完全属于我一个人使用
☐ 有，不过我经常借给我的同学使用
☐ 没有，不过我可以比较方便地使用同寝室同学的，朋友的或者自己家里的电脑
☐ 没有，也无法方便地使用别人的或家里的电脑

2. **如果您对第 1 题的回答为‘有’，请选择电脑的类型；如果回答为‘没有’，请选择您近期是否会购买电脑。**

☐台式电脑 ☐手提/笔记本电脑 ☐暂时不打算购买电脑 ☐打算近期购买电脑

3. **如果您在学校宿舍里可以使用电脑（自己的或他人的），请问该电脑有校网或者外网的接入吗？同时,请选择在校期间您会在多大程度上利用网络。**

网络的接入	使用频率
☐ 接入了校网，国内网与国外网	☐ 在校期间，我经常花大量的时间使用网络（校网或外网）
☐ 只接入了校网与国内网	☐ 我想更多地利用网络，但是目前有困难（如没有时间或距离太远等）
☐ 只接入了校网	☐ 我通常只在必需的时候花有限的时间利用网络（如为了某些课程）
☐ 没有任何网络的接入	☐ 我对上网不感兴趣，所以几乎不会花多少时间使用网络

4. **如果您能够在家里，学校里，或其它地方使用电脑与网络，那么您一周大致会花多长时间为学习或个人休闲娱乐目的而使用电脑或网络？**

	10 个小时或更多	7-9 个小时	5-6 个小时	3-4 个小时	1-2 个小时	0 个小时
辅助学习	☐	☐	☐	☐	☐	☐
休闲娱乐	☐	☐	☐	☐	☐	☐

5. **如果您将网络用于休闲娱乐的时间多于 0 小时，那么您主要将网络用于哪些方面？（*可有多项选择*）**

网上聊天	电子邮件	下载文件	网上购物	网上银行或其它网上商务	网上冲浪（浏览信息）	玩游戏
☐	☐	☐	☐	☐	☐	☐

6. **请选择您对下列一些电脑软件的应用的熟练程度。**

计算机的应用	非常有信心	有信心	我会需要一些帮助	从未使用过
文字处理器(Word Processor)，比如用 Word 写一篇格式整齐的文章	☐	☐	☐	☐
网页浏览器(Web Browser)，比如用 Internet Explorer 的浏览网站	☐	☐	☐	☐
电子邮件 (Email)，比如用 163 或者 Hotmail 的邮箱来收发信件	☐	☐	☐	☐
留言板或聊天室(Forum/Chatroom)，比如用 MSN 在网上和别人聊天	☐	☐	☐	☐
图文演示文件制作(Presentation)，比如用 Powerpoint 制作电子幻灯片	☐	☐	☐	☐
网页制作(Webpage Design)，比如用 Dreamweaver / HTML 语言设计网页	☐	☐	☐	☐
图形编辑(Image Editing)，比如用 Photoshop 改变图片的大小及色彩	☐	☐	☐	☐

7. 根据您的电脑使用经验，请选择您对以下说法的认可程度。

电脑的使用	完全同意	基本同意	中立	基本不同意	完全不同意
我觉得电脑给了我许多学习新事物的机会	☐	☐	☐	☐	☐
我对掌握计算机技术与使用完全有信心	☐	☐	☐	☐	☐
我对电脑在我们生活学习中的应用感到很适应	☐	☐	☐	☐	☐
我认为学会使用计算机是非常重要的	☐	☐	☐	☐	☐
我相信只要给我一定时间的练习，我能很好地掌握任何一种新软件的应用	☐	☐	☐	☐	☐
计算机与网络开阔了我的眼界，拓宽了我的知识面	☐	☐	☐	☐	☐
我觉得我能跟上计算机技术发展的潮流	☐	☐	☐	☐	☐
电脑知识对我将来找工作会很有帮助	☐	☐	☐	☐	☐
计算机与网络使我的学习变得更有效了	☐	☐	☐	☐	☐
我相信只要有足够的耐心与积极性，谁都能学会熟练地使用电脑	☐	☐	☐	☐	☐

8. 电脑与网络在我们的教育中有下列的各种应用，请问您认为这些应用对您的英语学习有可能产生多大的帮助？

运用电脑与网络辅助英语学习时，我可以.....	非常有帮助	比较帮助	有些帮助	不太有帮助	完全没有帮助
反复查阅学习内容或重复做练习题直到掌握知识或满意为止	☐	☐	☐	☐	☐
自己选择学习的时间地点，如假期在自己家里也可以继续学习	☐	☐	☐	☐	☐
自己掌握进度，如简单的内容可以很快地通过，较难的知识点可以多花点时间	☐	☐	☐	☐	☐
与他人进行远距离合作，如与他人合作完成一个学习或研究项目	☐	☐	☐	☐	☐
通过 E-mail 或网上论坛/聊天，与老师有更多的个别交流	☐	☐	☐	☐	☐
得到即时的反馈，如在电脑上做测试时，可以即时地查看结果	☐	☐	☐	☐	☐
获得更多机会与其他同学、其它院校甚至国外的同龄人进行交流	☐	☐	☐	☐	☐
接受远程教育，如国内外其它院校开设的一些网上课程	☐	☐	☐	☐	☐

9. 请选择说明您对各项的认可程度。

	完全同意	基本同意	中立	基本不同意	完全不同意
我用电脑的时候总是有点紧张，因为我觉得自己不是很有技术头脑的人	☐	☐	☐	☐	☐
电脑与网络提供了很多很有用的英语学习资源	☐	☐	☐	☐	☐
我觉得电脑与网络上的多媒体学习资源比书面的英语辅导材料效果好	☐	☐	☐	☐	☐
我尽量避免使用计算机，因为担心自己会由于操作不当而造成大的错误或损失	☐	☐	☐	☐	☐
我觉得有很多计算机技术上的问题很难理解	☐	☐	☐	☐	☐
计算机与网络让我有更多机会与他人用英语交流	☐	☐	☐	☐	☐
每当因为某些技术问题我的学习不能顺利进行的时候，我就会觉得很沮丧	☐	☐	☐	☐	☐
总的来说，我对使用电脑有点恐惧症	☐	☐	☐	☐	☐

以下第 10 至 19 题是关于您的英语学习与 NCE Online 使用情况的问题：

10. 您到目前为止一共已经学了多少年的英语？

☐ 1-3 年　☐ 4-6 年　☐ 7 年　☐ 8-9 年　☐ 10 年　☐ 多于 10 年

11. 您在这一学年中，一般情况下每周在英语学习上花多少时间（不包括上课时间）？

☐ 少于 2 个小时　☐ 2~4 个小时　☐ 4~6 个小时　☐ 6~8 个小时　☐ 8 个小时以上

12. 与上大学前相比，您现在使用以下各类途径学习英语的时间是有所增加还是减少？如果是减少，请在相应的框内写上 1；如果是增加，请在框内写上 2；如果没有使用某个途径或时间上没有什么变化，那么就不用填写任何数字。

录音磁带	录像带	广播节目	电视节目	电脑光盘/软件	因特网	正常英语课以外的强化班或家教
☐	☐	☐	☐	☐	☐	☐

13. 如果您已经或正在使用我校的网络课件NCE Online (New College English Online)，请问您通常是在何处上网使用该课件的？如果是家里的电脑，请同时选择您是通过哪一种技术联网的。（*可有多项选择*）

☐我寝室里的电脑　☐学校实验室/教室里的电脑　☐自己家里的电脑(连接方式：拨号上网☐　宽带上网☐)

14. 在这一学年中，您使用 NCE Online 的大致情况如何？

每天使用	每周数次	每月数次	用过几次	从来没用过
☐	☐	☐	☐	☐

15. NCE Online 有 4 个主要组成部分，请将您花在这 4 个部分上的时间从最短（1）到最长（4）排列顺序。请将数字（从 1 到 4）直接填写在小框内。注意：因为是按难度排序，因此不应有重复的数字。

☐ NCE　☐ English For Fun　☐ Online Community　☐ Reference

16. 如果您能在网络课件（网上课程）与课堂教学（与老师和同学面对面）之间自由选择的话，您会最喜欢按下列哪种方式学习英语？

完全通过网络课件自学英语	网络课件＋教师网上辅导	网络课件为主课堂学习为辅	网络课件与课堂学习基本等量	课堂学习为主网络课件为辅	只要有课堂教学就够了
☐	☐	☐	☐	☐	☐

17. 请选择您对以下说法的认可程度。

	完全同意	基本同意	中立	基本不同意	完全不同意
我喜欢在生活或学习中使用电脑	☐	☐	☐	☐	☐
我很喜欢这种通过电脑与网络学习英语的方式	☐	☐	☐	☐	☐
我觉得 NCE Online 使英语学习变得更有意思了	☐	☐	☐	☐	☐
我经常利用 NCE Online 的 Online Community，在论坛上查阅或发表留言，或与其他同学聊天	☐	☐	☐	☐	☐
相比较而言，我对那些需要经常使用计算机的课程会更感兴趣	☐	☐	☐	☐	☐
我喜欢通过 NCE Online 与老师交流	☐	☐	☐	☐	☐
我觉得有些课程我可能更喜欢通过网络与课件自学	☐	☐	☐	☐	☐
与印刷的书面辅导材料相比，我更喜欢用 NCE Online 来辅助我学习	☐	☐	☐	☐	☐
虽然电脑的应用有时候有点复杂，我还是喜欢经常地使用它	☐	☐	☐	☐	☐
我非常喜欢 NCE Online 提供的课外学习资源，比如影视片段，单词游戏等	☐	☐	☐	☐	☐

+

18. 您觉得 NCE Online 对您的英语学习有多大的帮助？

NCE Online 的特点	非常有帮助	比较帮助	有些帮助	不太有帮助	完全没有帮助
提供额外的听力材料，便于我课外加强练习	☐	☐	☐	☐	☐
我可以查看主要课文中单词或句子的翻译	☐	☐	☐	☐	☐
每篇 In-Class Reading 的文章都配有标准的原声朗读	☐	☐	☐	☐	☐
NCE Online 的学习纪录让我知道我已经完成了哪些练习以及相应的成绩或结果	☐	☐	☐	☐	☐
Word Games 中的词汇练习	☐	☐	☐	☐	☐
NCE Online 的单词检索（Glossary）不仅提供单词的发音，解释，而且给出了相应的例句以及例句所在的课本，单元与文章	☐	☐	☐	☐	☐
在 NCE Online 的’Speaking’部分里，我可以用’Role Play’功能来练习口语	☐	☐	☐	☐	☐
提供了学生写的样品作文，并且对其中的错误作了详细的解释与纠正	☐	☐	☐	☐	☐
我可以在 NCE Online 的 Discussion Forum 或 Chatroom 上与其他同学用英语进行讨论或聊天	☐	☐	☐	☐	☐
NCE Online 提供的参考工具，如语法解释	☐	☐	☐	☐	☐
阅读文章有一些背景或异国文化知识的介绍	☐	☐	☐	☐	☐

19. 如果要让 NCE Online 变得更有吸引力，您觉得您会需要哪些资源或功能？

各类资源	非常需要	比较需要	中等	基本不需要	完全不需要
老师组织一些可以通过网络进行的小组活动或与同学合作的机会	☐	☐	☐	☐	☐
更多的练习题资源，如听力、词汇、阅读理解等	☐	☐	☐	☐	☐
更多的写作技能方面的训练	☐	☐	☐	☐	☐
更多的发音方面的训练	☐	☐	☐	☐	☐
更多的 'English For Fun' 材料	☐	☐	☐	☐	☐
更有效的参考工具，比如有图片或动画的词典，以便记忆单词	☐	☐	☐	☐	☐
更多的与每个单元的主题相关的信息或背景知识，比如，如果有个单元与旅游有关，那么可以提供一些旅游方面的网站的链接	☐	☐	☐	☐	☐
更多的口语对话练习	☐	☐	☐	☐	☐
通过 NCE Online 的网上社区和老师有更多个别交流的机会	☐	☐	☐	☐	☐
设置一个专门的答疑板，这样学生可以更集中地向老师询问，也能更便捷地从其他同学的答疑留言中找到自己需要的信息	☐	☐	☐	☐	☐

接下来请告知一些您的个人情况

20. 请在下面的框内填写您的学号：（请如右图所示填写 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | **）**

21. 您的性别： 女☐ 男☐

22. 您现在的英语级别为： 1级☐ 2级☐ 3级☐ 4级☐ 5或6级☐

23. 请将下面英语学习的 5 个方面从最容易（1）到最困难（5）排列顺序。请将数字（从 1 到 5）直接填写在下面的框内。注意：因为是按难度排序，因此不应有重复的数字。

☐ 记忆与使用新的单词及词组 ☐ 理解及正确使用语法 ☐ 听力理解 ☐ 写作 ☐ 口语

24. 总的来说，与其它学科的学习相比，您现在对英语学习的感觉如何？

我非常喜欢学习英语 ☐ 我比较喜欢学习英语 ☐ 既谈不上喜欢也没有不喜欢 ☐ 我不太喜欢学英语 ☐ 我讨厌学英语 ☐

25. 如果您对英语学习或电脑与网络在学习中的应用还有一些其它的感想，非常欢迎您将它们写在下面的空白框中。

Many Thanks Again!

如果您有任何疑问或建议，非常欢迎联系我们：

E-mail: nceonline@163.com or Yuhua.Hu@education.ed.ac.uk

21/04/04

Questionnaire 02 (2004)

How to complete the questionnaire: If it is a multiple choice question, please mark in the small checkbox beside the item you choose. Most questions can only have one choice, however, the questions that are specifically indicated with 'Please mark all appropriate' can have more than one choice. If it is a question that asks you to fill in something, please write down your responses in the blank boxes provided.

Thank You Very Much for Your Kind Assistance!

Questions 1-11 are about your computer use experiences:

1. **If you are living in a university dormitory, do you own a computer there? Please indicate which of the following is the closest to your circumstances.**

☐ Yes. I have a computer all to myself
☐ Yes, I have my own computer, but I also often let my roommate(s) use it
☐ No, but I can use my friend(s)' or home computer conveniently
☐ No, and I don't have convenient access to friend(s)' or home computer either

2. **If your answer to Question 1 is 'Yes', please indicate the type of your computer; if your answer is 'No', please indicate whether you intend to buy a computer in the near future.**

☐ Desktop ☐ Laptop ☐ I will buy a computer soon. ☐ I will not buy one in the near future.

3. **If you have to go to the computer labs to use computers, do you have any difficulty accessing computers there?**

☐ Very difficult ☐ Often difficult ☐ Occasionally difficult ☐ Very convenient

4. **If you use a computer (your own or someone else') in your dormitory, is the computer connected to any network?**

☐ Yes, the university intranet, the national network and the Internet
☐ Yes, but only the university intranet
☐ Yes, but only the university intranet and the national network
☐ No, no connection to any network at all

5. **If you can access a computer at home or elsewhere, approximately how many hours a WEEK do you spend on the computer or networks for your study and recreational purposes?**

	≥10 hours	7-9 hours	5-6 hours	3-4 hours	1-2 hours	0 hours
Study Purposes	☐	☐	☐	☐	☐	☐
Recreational Purposes	☐	☐	☐	☐	☐	☐

6. **When you use computers for study, how is the proportion between the use due to university/course requirements and the use out of your own will?**

☐ Completely by requirements ☐ Mainly by requirements ☐ About same amount ☐ Mainly voluntary ☐ Completely voluntary

7. **When you use networks for recreational purposes, which of the following do you use mainly? (Please mark all appropriate)**

Chat	E-mail	Downloading files	Shopping online	Banking or similar on-line business	Surfing websites	Games
☐	☐	☐	☐	☐	☐	☐

8. **Please indicate how well you can use the following applications on a computer.**

	Very Competent	Competent	I'd need some help	I've never used it
Word Processor, eg. Writing an well-formatted essay with Word	☐	☐	☐	☐
Web browser, eg. Using Internet Explorer to browse for information	☐	☐	☐	☐
Email, eg. Using 163 or Hotmail to send and receive emails	☐	☐	☐	☐
Forum/Chatroom, eg. Using MSN to chat with other people online	☐	☐	☐	☐
Presenation, eg. Using Powerpoint to design electronic slides	☐	☐	☐	☐
Webpage Design, eg. Using Dreamweaver/HTML to design web pages	☐	☐	☐	☐
Image Editing, eg. Using Photoshop to resize or change brightness of pictures	☐	☐	☐	☐

9. Please indicate how much you agree/disagree with the following statements according to your computer experience.

Using Computers in Daily Life	Strongly Agree	Mostly Agree	Neutral	Mostly Disagree	Strongly Disagree
Computers give me opportunities to learn many new things	☐	☐	☐	☐	☐
I am confident that I can learn computer skills well	☐	☐	☐	☐	☐
I feel comfortable working with a computer	☐	☐	☐	☐	☐
I believe it is very important for me to learn how to use a computer	☐	☐	☐	☐	☐
I believe with time and practice I will be able to use any software well	☐	☐	☐	☐	☐
Computers and the Internet have broadened my scope of knowledge	☐	☐	☐	☐	☐
I feel I will be able to keep up with the advances in the IT world	☐	☐	☐	☐	☐
Computer skills will be important when I look for jobs in the future	☐	☐	☐	☐	☐
Computers and the Internet have made my study more effective	☐	☐	☐	☐	☐
Anyone can learn to use a computer if they are patient and motivated	☐	☐	☐	☐	☐

10. Computers & networks are being used in the following ways in our education. How helpful do you think they may be for your English study?

Through computers & networks, I can.....	Very Helpful	Fairly Helpful	Medium	Not so Helpful	Not Helpful At All
Review study content or do exercises repeatedly until I acquire the knowledge	☐	☐	☐	☐	☐
Choose time and location of study at my own convenience	☐	☐	☐	☐	☐
Self-pace my study, eg. Skipping the easier content	☐	☐	☐	☐	☐
Collaborate with other people at a distance, eg. for a project	☐	☐	☐	☐	☐
Have more contact with teachers through E-mail, online forum/chatroom	☐	☐	☐	☐	☐
Exchange ideas with classmates or peers from other home/overseas universities	☐	☐	☐	☐	☐
Obtain instant feedback when doing online exercises	☐	☐	☐	☐	☐
Receive distance education, eg. courses offered by other institutions	☐	☐	☐	☐	☐

11. Please indicate how much you agree/disagree with the following statements +

	Strongly Agree	Mostly Agree	Neutral	Mostly Disagree	Strongly Disagree
I feel apprehensive about using computers because I'm not very technically-minded	☐	☐	☐	☐	☐
I'd rather talk to teachers face to face than communicate through CMC tools	☐	☐	☐	☐	☐
Computers and the Internet provide us with a lot of useful English study resources	☐	☐	☐	☐	☐
I think computerized multi-media English materials are more effective than printed materials	☐	☐	☐	☐	☐
I avoid computers because I'm worried about making mistakes or breaking something due to improper operations	☐	☐	☐	☐	☐
Compared with speaking up or expressing my ideas in front of other peop le, I'd prefer to communicate with my fellow students through CMC tool s	☐	☐	☐	☐	☐
I have difficulty in understanding the technical aspects of computers	☐	☐	☐	☐	☐
Computers and networks bring more opportunities for me to communicat e with other people in English	☐	☐	☐	☐	☐
I feel really frustrated when my study couldn't proceed smoothly because of the computer's technical problems	☐	☐	☐	☐	☐
In general, I have a phobia for the use of computers	☐	☐	☐	☐	☐

Questions 11-20 are about your English study and your use of NCE Online:

12. How long have you been learning English up till now?

☐1-3 Years ☐4-6 Years ☐7 Years ☐8-9 Years ☐10 Years ☐ More than10 Years

13. **In the past year, approximately how much time did you spend on English study every week (excluding the classtime)?**

≤ 1 hour ☐ 2~4 hours ☐ 4~6 hours ☐ 6~8 hours ☐ ≥ 8 hours ☐

14. **Compared with before you started university, which of the following methods have you increased or decreased using for your English study? Please write '1' in the corresponding box(es) if it is 'decreased'; write '2' if it is 'increased'; please do not write anything if you have never used a method or the time you used it has not changed.**

Printed materials (eg. books&magazines) ☐ Audio/video cassette tapes ☐ Broadcast programmes (eg. Radio, Television) ☐ CD-Roms ☐ The Internet ☐ Extracurricular training tutorials or private tutors ☐

15. **If you have used or are using NCE Online (New College English Online), please indicate where you usually access it. If it is your home computer, please also choose your connection method. (You may have more than one option)**

☐ Dormitory computer ☐ University computing labs ☐ Home computer (Connection: Modem ☐ Broadband ☐)

16. **During the past semester, how often did you use NCE Online?**

☐ Daily ☐ Several times/week ☐ Several times/month ☐ Only several times in total ☐ Never Used

17. **There are four main components in NCE Online. Please rank them according to the time you spend on them from the shortest (1) to the longest (4). Please note that, since it is order ranking, there should not be any repeated numbers.**

☐ NCE ☐ English For Fun ☐ Online Community ☐ Reference

18. **If you could choose freely, which of the following methods would you like most for your English study at university?**

Complete self-study through CALL ☐ CALL + Online Tutoring ☐ Mainly CALL + classroom learning ☐ About same amount of CALL & classroom learning ☐ Mainly classroom learning + CALL ☐ Classroom learning only ☐

19. **Please indicate how much you agree or disagree with the following items.**

Items	Strongly Agree	Mostly Agree	Neutral	Mostly Disagree	Strongly Disagree
I like using computers in my daily life and study	☐	☐	☐	☐	☐
I like the idea of learning English through computers	☐	☐	☐	☐	☐
I feel NCE Online has made my English study more interesting	☐	☐	☐	☐	☐
I often access NCE Online's 'Online Community'	☐	☐	☐	☐	☐
Comparatively speaking, I'd be more interested in courses which involve using computers very often	☐	☐	☐	☐	☐
I like to communicate with teachers through NCE Online.	☐	☐	☐	☐	☐
For some courses, I'd prefer to study with E-learning materials on my own	☐	☐	☐	☐	☐
I prefer using NCE Online rather than printed materials for self-study	☐	☐	☐	☐	☐
I like working on computers even though they are a bit complicated sometimes	☐	☐	☐	☐	☐
I enjoy the additional multimedia materials provided by NCE Online, such as English songs and movie clips.	☐	☐	☐	☐	☐

20. **How helpful do you think the following features of NCE Online are?**

NCE Online Features	Very Helpful	Fairly Helpful	Medium	Not so Helpful	Not Helpful At All
The additional listening materials enable me to practice outside the classroom	☐	☐	☐	☐	☐
Every In-Class Reading text is read out by native speakers	☐	☐	☐	☐	☐
Being able to view the translations of words or sentences in the texts	☐	☐	☐	☐	☐
Being able to view my study record so that I know how much I've completed	☐	☐	☐	☐	☐
The vocabulary practices in Word Games	☐	☐	☐	☐	☐
The Glossary of NCEonline provides not only pronunciation and explanation of a word, but also the example sentences from the textbooks	☐	☐	☐	☐	☐

Being able to have role-play practice in the 'Speaking' section in NCE	☐	☐	☐	☐	☐
Being given sample writings and shown how the errors in them are corrected	☐	☐	☐	☐	☐
Being able to discuss on different topics with other students in English on NCE Online's Discussion Forum or Chatroom	☐	☐	☐	☐	☐
The referencing tools provided by NCEonline, eg., grammar explanations	☐	☐	☐	☐	☐

21. To make NCE Online more attractive, how much do you think you would need the following features?

Possible Features/Resources in NCE Online	Very Necessary	Fairly Necessary	Somewhat Necessary	Not Necessary
Teachers organize more group or collaboration activities online	☐	☐	☐	☐
More exercises, such as listening, vocabulary or reading comprehension	☐	☐	☐	☐
More writing skills training	☐	☐	☐	☐
More pronunciation training exercises	☐	☐	☐	☐
More 'English For Fun' resources	☐	☐	☐	☐
Better reference tools, eg., a picture dictionary to help us memorize new words	☐	☐	☐	☐
More facilitative information related to the topic of each unit, eg., links to interesting websites about tourism if a unit is about travelling	☐	☐	☐	☐
More oral English practice	☐	☐	☐	☐
More chances to communicate with the teachers via its 'Online Community'	☐	☐	☐	☐
An FAQ board so that students can ask questions about English knowledge easily or learn from other students' questions and answers	☐	☐	☐	☐

Now please provide some of your personal information:

22. Your Student ID Number:
(please write the numbers in the boxes as shown | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

23. Your gender: Female ☐ Male ☐ **Your college (please write on the line):** _____

24. Your English Level now: 1st ☐ 2nd ☐ 3rd ☐ 4th ☐ 5th or 6th ☐

25. Please rate the following English learning aspects from the easiest (1) to the most difficult (5). Please write down the number (1 to 5) inside the boxes. Please note that, since it is order ranking, there should not be any repeated numbers.

☐ Vocabulary ☐ Grammar ☐ Listening ☐ Writing ☐ Speaking

26. In general, how do you feel about learning English as compared with the other subjects you need to study?

☐ I enjoy it very much ☐ I somewhat like it ☐ No particular feelings for it ☐ I somewhat dislike it ☐ I hate it

27. If you have some thoughts about the use of computers & network in your study, please feel free to write them down in the box below:

Many Thanks Again!

If you have any enquiries or suggestions, please contact us by E-mail: nceonline@163.com; Yuhua.Hu@education.ed.ac.uk

网络环境NCE Online辅助英语学习
调查问卷

如何填写该问卷：

- 没有特别注明的选择题皆为单项选择题，请直接点击您所选的选项旁边或下面的圆圈。
- 如果特别注明是多项选择题，请点击您所选的选项左侧的小方框。
- 如果是需要您填写数字或文字的问题，请在空白框内直接将您的回答键入。

Thank you very much for your kind assistance!

第 1 题到第 6 题是关于您电脑使用情况的问题：

1. 您在校学习期间居住的地方（家里或宿舍里）是否有电脑?

- ☐ 有，我有一台完全属于自己的电脑，我可以在任何时候使用它。
- ☐ 有，不过我经常借给我的同学使用。
- ☐ 没有，不过我可以比较方便地使用自己家里的、朋友或同寝室同学的电脑。
- ☐ 没有，也无法方便地使用别人的电脑，不过我会在不久的将来买一台电脑。
- ☐ 没有，也无法使用别人的电脑，近期也不会购买电脑。

2. 如果您对第 1 题的回答为'有'，请问该电脑是否有网络的连接?

☐ 有，连接了校网、国内网及因特网 ☐ 有，连接了校网与国内网 ☐ 有，只连接了校网 ☐ 没有任何网络的接入

3. 如果您能够在家里，学校里，或其它地方使用电脑，那么一般您每周会多么频繁地为学习和个人休闲娱乐目的使用电脑?

	10 个小时或更多	7-9 个小时	5-6 个小时	3-4 个小时	1-2 个小时	0 个小时
辅助学习	☐	☐	☐	☐	☐	☐
休闲娱乐	☐	☐	☐	☐	☐	☐

4. 如果您能够在家里，学校里，或其它地方上网，您主要将网络用于以下哪些用途？（可有多项选择）

☐ 网上交流（聊天或论坛） ☐ 电子邮件 ☐ 下载文件（如音乐或程序） ☐ 网上购物或订货

☐ 网上银行或类似网上商务 ☐ 网上冲浪 ☐ 玩游戏

5. 请选择您对下列一些电脑软件应用的熟悉程度。

计 算 机 的 应 用	非常有信心	有信心	需要一些帮助	从未使用过
文字处理器（Word Processor）， 如用 Word 写一篇格式整齐的文章	☐	☐	☐	☐
网页浏览器（Web Browser）， 如用 Google 搜索信息	☐	☐	☐	☐
电子邮件(Email)， 如用 163 或者 Hotmail 的邮箱来收发信件	☐	☐	☐	☐
网上论坛或聊天， 比如用 OICQ 或者 MSN 在网上和别人聊天	☐	☐	☐	☐

图文演示文件制作，如用微软的 Powerpoint 制作电子幻灯片	☐	☐	☐	☐
网页制作，比如用 Dreamweaver 或 HTML 语言自己设计网页	☐	☐	☐	☐
图形编辑，比如用 Photoshop 改变照片的大小及色彩	☐	☐	☐	☐

6. 请问您在学习中使用电脑是出于以下何种情况？

☐ 完全是因为学校或课程的要求
☐ 大部分时候是由于学校或课程的要求
☐ 学校/课程要求与自愿使用基本等量
☐ 大部分时候是自愿地使用电脑辅助学习
☐ 完全是自觉自愿地使用

为了让 NCE Online 更适合每位同学的需要，我们需要了解您学习时的方法与喜好。第 7 题到第 17 题是关于您学习方式的问题：

7. 大多数情况下，我更倾向于做一个倾听者而不是发言者。

☐ 是 ☐ 否

8. 我喜欢先完成一项任务然后再去做下一个任务，而不是同时开展几个工作。

☐ 是 ☐ 否

9. 如果我_____，我对该个事物的记忆会最深刻。

☐ 看到某事物 ☐ 听到某事物

10. 很多时候，我倾向于_____。

☐ 挑战或质疑我所听到的或阅读到的事物 ☐ 接受我听到或阅读到的事物

11. 我在进入一个教室后，通常会选择坐在教室的两边而不是中间。

☐ 是 ☐ 否

12. 学习的时候，我喜欢_____。

☐ 在一个小组中和别人一起学习 ☐ 独自一个人学习

13. 在考试中做题的时候，我能在脑子中清楚地'看到'题目答案在课本或我笔记本中的哪个位置。

☐ 是 ☐ 否

14. 我觉得很多老师如果能_____，他们的课程可以变得更好。

☐ 组织更多的讨论和小组活动 ☐ 让学生更多地独立学习

15. 我往往只关注全局而忽略了细节，只见森林而不见树木。

☐ 是 ☐ 否

16. 如果有一个项目需要一个小组去完成，我会希望_____。

☐ 与其他成员共同完成整个项目 ☐ 把项目分成多个任务，然后大家各自独立完成分派给

自己的任务

17. 在一个学习小组里共同解决一个难题时，大多数情况下我会_____。

□ 积极地提供我的想法和建议　□ 坐着听别人的讨论

第 18 题到第 30 题是关于您的英语学习和对 NCE Online 的使用情况的问题：

18. 如果您在使用我校的网络课件 NCE Online，请问您通常是在何处上网使用该课件的？如果是家里的电脑，请同时说明您是通过哪一种技术联网的。（可有多项选择）

□ 寝室里	□ 英语课的教室里	□ 学校电脑房或实验室里
	拨号上网（Modem）	**局域网/宽带网（LAN）**
□ 自己家里	□	□

19. 在这一学年中，您在英语课课内与课外使用 NCE Online 的情况如何？

英语课堂上： □ 每次课都使用 □ 每周一次 □ 每月 1-3 次 □ 一年中用过几次 □ 几乎没用过

英语课以外： □ 每天使用 □ 每周数次 □ 每月数次 □ 用过几次 □ 没在课外用过

20. 您的英语教师是否鼓励督促你们使用 NCE Online?

□ 是的，经常鼓励我们使用　□ 是的，鼓励过几次　□ 几乎没有

21. 如果您能自由选择的话，您会最喜欢按下列哪种方式学习英语？

□ 完全通过类似 NCE Online 网络课件自学英语
□ 网络课件加上教师网上辅导
□ 网络课件为主，面对面的课堂学习为辅
□ 网络课与课堂学习基本等量
□ 课堂学习为主，网络课件为辅
□ 只要有面对面的课堂教学即可

22. 您在使用 NCE Online 过程中的感受如何？ 请选择您对以下说法的认可程度。

使用 NCE Online 的感受	完全同意	基本同意	中立	基本不同意	完全不同意
有这样的一个网络学习园地是件好事	□	□	□	□	□
NCE Online 的界面看起来比较悦目	□	□	□	□	□
不同颜色的运用让我对整体上各个部分的布局一目了然	□	□	□	□	□
我觉得 NCE Online 让学习变得更有趣了	□	□	□	□	□
网站的网页导航很清晰，在各个网页之间切换的时候不太会迷失方向	□	□	□	□	□
网页中的文字部分显得比较拥挤，不容易阅读	□	□	□	□	□

整个系统使用起来感觉比较舒服	☐	☐	☐	☐	☐
系统提供足够的自由度，让我能按我喜欢的方式使用它	☐	☐	☐	☐	☐
使 用 NCE Online 的 感 受	**完全同意**	**基本同意**	**中立**	**基本不同意**	**完全不同意**
NCE Online 比印刷类的辅导材料更有效地帮助了我的学习	☐	☐	☐	☐	☐
在网站中很容易找到我所需要的信息或内容	☐	☐	☐	☐	☐
系统对用户操作失误的承受与处理能力比较强	☐	☐	☐	☐	☐
各个菜单中的选项排列比较符合逻辑	☐	☐	☐	☐	☐
总的来说我觉得这套系统的使用比较容易	☐	☐	☐	☐	☐
网站中辅助性的参考资料（如 Reference 部分）比较清楚明确	☐	☐	☐	☐	☐
系统的运行很稳定	☐	☐	☐	☐	☐
NCE Online 令我的英语学习更轻松了	☐	☐	☐	☐	☐

22A. 如果您对使用 NCE Online 时操作的难易程度有一些感想或建议，请将它们填写在下面框中。

23. 对于下列英语学习的各个方面而言，您觉得 NCE Online 产生了多大的帮助？

学 习 的 各 个 方 面	非常有帮助	比较有帮助	一般	不太有帮助	无任何帮助
学习掌握基础知识（如单词、语法等）	☐	☐	☐	☐	☐
增加与他人交流的机会，提高语言流利程度	☐	☐	☐	☐	☐
提高听力理解的能力	☐	☐	☐	☐	☐
获取更多与学习相关的信息以资源	☐	☐	☐	☐	☐
更自主地掌握学习的时间与地点，如假期在家里进行学习	☐	☐	☐	☐	☐
更好地理解课本中阅读文章的背景与内容	☐	☐	☐	☐	☐

23A. 您觉得 NCE Online 还有其它哪些优点或者缺点？有没有什么您希望在 NCE Online 中看到或使用的、而现在还没有的内容或功能？请将它们在下面框中描述一下。

24. 如果您不经常使用 NCE Online，原因有哪些？（可有多项选择）

☐ 没有时间好好利用	☐ 机房/实验室常常人太多，机器不够用	☐ 机房/实验室不方便（如距离远或环境不舒服）
☐ 去机房上机的费用太高	☐ 在宿舍/家里用网络的费用太高	☐ 对考试没有什么直接帮助

其它原因（请填写在右侧框内）：

25. 您现在的英语级别为：

☐ 一级 ☐ 二级 ☐ 三级 ☐ 四级 ☐ 五级或六级

26. 您到目前为止一共已经学了多少年的英语？(请填写在下面的空白框内)

_____年

27. 与一年级的时候相比，您现在使用以下途径学习英语的时间有无变化？

	减少	增加	无变化	从未使用过
印刷材料（书本、杂志）	☐	☐	☐	☐
录制品（录音、录像带）	☐	☐	☐	☐
广播节目（电台、电视）	☐	☐	☐	☐
电脑光盘或软件	☐	☐	☐	☐
网络（校网或因特网）	☐	☐	☐	☐
正常英语课以外的加强班或家教	☐	☐	☐	☐

28. 上面第 27 题提到的途径中哪些是您最常用的？为什么？请在下面的框中简单地说明一下。

29. 请选择您对以下说法的认可程度。

在英语学习中	完全同意	基本同意	中立	基本不同意	完全不同意
在写作文或交谈时，我很喜欢尝试用新学到的单词或词组	☐	☐	☐	☐	☐
只要能看懂一篇文章，我觉得没有必要查阅确定每个新单词的意思	☐	☐	☐	☐	☐

30. 请将下面英语学习的 5 个方面从最容易（1）到最困难（5）排列顺序。请点击各选项右边选择框内的小箭头然后在弹出的菜单中选择一个数字。

记忆与使用新的单词及词组 请选择

理解及正确使用语法 请选择

听力理解	请选择
写作	请选择
口语	请选择

接下来请告知一些您的个人情况：

31. 您的学号(请填写在下面的空白框内）：

32. 您的性别：

☐ 女 ☐ 男

33. 您所在的学院：

请点击框右侧的小箭头后从弹出的菜单中选择： 请从菜单中选择

如果您不属于上述任何学院，请在右边的框内填写您的学院名称：

34. 请问您上大学之前的常住地是在哪个省份或直辖市？

请点击框右侧的小箭头后从弹出的菜单中选择： 请选择

35. 为了您的英语学习，您是否有想做但是现在还做不到的事情？如果有，是哪些？为什么无法做到？请将它们写在下边的框内：

请点击此处递交完成的问卷

如果您有任何疑问或建议，非常欢迎联系我们：

by

E-mail: nceoline@163.com or Yuhua.Hu@education.ed.ac.uk

Many Thanks Again

Questionnaire 03 (Online)

Questions 1-6 are about your computer using experiences:

1. **Is there a computer in your residence (your home or university dormitory room) during the semester?**
   - Yes, I own a computer all to myself and I can use it anytime.
   - Yes, I own a computer but I often lend it to my classmates.
   - No, but I can access my computer at home, or my friends/classmates' computers conveniently.
   - No, I can't access other people's computers conveniently either, but I will buy a computer for myself soon.
   - No, I can't access other people's computers conveniently either, neither will I buy a computer in the near future.

2. **If there is a computer in your residence (your home or university dormitory room), is it connected to any network?**
   - Yes, connected to the university intranet, national network and the Internet.
   - Yes, connected to the university intranet, national network.
   - Yes, connected to the university intranet only.
   - No, not connected to any network.

3. **If you can use computers at home, university or in other places, how often do you use them for study and recreational purposes respectively?**

	10 or more hours	7-9 hours	5-6 hours	3-4 hours	1-2 hours	0 hours
Study Purposes	☐	☐	☐	☐	☐	☐
Recreational Purposes	☐	☐	☐	☐	☐	☐

4. **If you can access networks at home, university or in other places, what do you mainly use them for?**

Chat	E-mail	Downloading files	Shopping online	Banking or similar on-line business	Surfing websites	Games
☐	☐	☐	☐	☐	☐	☐

5. **Please indicate how well you can use the following applications on a computer.**

	Very Competent	Competent	I'd need some help	I've never used it
Word Processor, eg. Writing an well-formatted essay with Word	☐	☐	☐	☐
Web browser, eg. Using Internet Explorer to browse for information	☐	☐	☐	☐
Email, eg. Using 163 or Hotmail to send and receive emails	☐	☐	☐	☐
Forum/Chatroom, eg. Using MSN to chat with other people online	☐	☐	☐	☐
Presenation, eg. Using Powerpoint to design electronic slides	☐	☐	☐	☐
Webpage Design, eg. Using Dreamweaver/HTML to design web pages	☐	☐	☐	☐
Image Editing, eg. Using Photoshop to resize or change brightness of pictures	☐	☐	☐	☐

6. **When you use computers for study, how is the proportion between the use due to university/course requirements and the use out of your own will?**

☐Completely by requirements ☐Mainly by requirements ☐About same amount ☐Mainly voluntary ☐Completely voluntary

Questions 7-17 are about your learning preferences:

7. **I am more of a listener than a speaker.**
   a) Yes b) No
8. **I prefer to finish one assignment before starting another one.**
   a) Yes b) No
9. **I remember best**
   a) what I see b) what I hear.
10. **I tend to**
    a) challenge and question what I hear and read b) accept what I hear and read
11. **I usually place myself nearer to the side rather than in the centre of the room**
    a) Yes b) No

12. **I prefer to study**
a) in a study group b) alone.

13. **When taking a test, I can 'see' the answer in my head as it appeared in my notes or textbook when I studied.**
a) Yes b) No

14. **Many instructors could improve their classes by**
a) including more discussion and group activities b) allowing students to work on their own more frequently

15. **I am more interested in a general idea than in the details of its realization.**
a) Yes b) No

16. **When on a team project, I prefer**
a) to work with several team members b) to divide up tasks and complete those assigned to me

17. **In a study group working on difficult material, I am more likely to**
a) jump in and contribute ideas b) sit back and listen

Questions 18-23 are about your experiences with NCE Online:

18. **If you have used or are using NCE Online, please indicate where you usually access it. If it is your home computer, please also choose your connection method. (Please mark all appropriate)**

☐ Dormitory computer ☐ University Computing labs ☐ Home computer(Connection: Modem☐ Broadband ☐)

19. **During the past semester, how often did you use NCE Online in the English class and after class?**

In Class	☐Every class	☐Once/week	☐1~3 times/month	☐Several times/ year	☐Never used
After class	☐Daily	☐Several times/week	☐Several times/month	☐Only several times	☐Never used

20. **Does your teacher encourage you to use NCE Online?**
☐ Yes, very often ☐ Yes, a few times ☐Hardly ever

21. **If you could choose freely, which of the following methods would you like most for your English study at university?**

Complete self-study through CALL	CALL + Online Tutoring	Mainly CALL + classroom learning	About same amount of CALL & classroom learning	Mainly classroom learning + CALL	Classroom learning only
☐	☐	☐	☐	☐	☐

22. **Please indicate how much you agree or disagree with the following items.**

About NCE Online	Strongly Agree	Mostly Agree	Neutral	Mostly Disagree	Strongly Disagree
It is a good idea to have such an online learning environment	☐	☐	☐	☐	☐
Its interface looks pleasant	☐	☐	☐	☐	☐
The colours help to pick out different sections	☐	☐	☐	☐	☐
I feel NCE Online has made my English study more interesting	☐	☐	☐	☐	☐
The navigation of the site is easy; it's not likely to lost my way when shifting among windows	☐	☐	☐	☐	☐
The texts are too dense and hard to read on screen.	☐	☐	☐	☐	☐
I feel comfortable using this system	☐	☐	☐	☐	☐
The system allows me sufficient flexibility to work in the way I want	☐	☐	☐	☐	☐
I prefer using NCE Online rather than printed materials for self-study	☐	☐	☐	☐	☐
It is easy to find the information I need	☐	☐	☐	☐	☐
The system is helpful in coping with operational errors	☐	☐	☐	☐	☐
The grouping of menu options is logical	☐	☐	☐	☐	☐
Overall, I am satisfied with how easy it is to use this system	☐	☐	☐	☐	☐
The referencing materials are very clear	☐	☐	☐	☐	☐
The system is running very reliably	☐	☐	☐	☐	☐
NCE Online makes my English study easier	☐	☐	☐	☐	☐

22A. If you have any other comments or suggestions about the user-friendliness of the system, please write them down in the box below:

23. **Please indicate how helpful you feel NCE Online has been for you in the following aspects?**

ITEMS	Very Helpful	Helpful	Medium	Not Very Helpful	Not Helpful at all
Acquiring basic knowledge, eg., new vocabulary, grammar	☐	☐	☐	☐	☐
Improving my speaking competence through more communication opportunities with other students	☐	☐	☐	☐	☐
Improving my listening	☐	☐	☐	☐	☐
Obtaining more study-related information and resources	☐	☐	☐	☐	☐
More flexibility of study time and place, eg., at home on holidays	☐	☐	☐	☐	☐
Being able to understand the background knowledge and texts better	☐	☐	☐	☐	☐

23A. If you have more Comments on the strengths or weaknesses of NCE Online, please write them down in the box below:

24. If you don't use NCE Online regularly, what are the reasons? (Please mark all appropriate)

☐ not enough time ☐ computing labs too crowded/computers often not available ☐ labs not convenient (e.g. too far)
☐ labs too expensive ☐ networks in dormitory too expensive ☐ not very useful for exams
☐Other reasons :

25. Your English Level now: ☐ 1st ☐ 2nd ☐ 3rd ☐ 4th ☐ 5th / 6th

26. How many years have you been studying English up till now? _____ years

27. Please indicate the frequency you use the following media for English study.

	Decreased	Increased	No change	Never used
Printed materials (eg. Books, magazines)	☐	☐	☐	☐
Recorded materials (eg. Audio/video tapes)	☐	☐	☐	☐
Live broadcasting (eg. Radio/TV programs)	☐	☐	☐	☐
CD-ROMs/software packages	☐	☐	☐	☐
The Internet	☐	☐	☐	☐
Extra tutorials/private tutors	☐	☐	☐	☐

28. Which of the learning media mentioned above do you use most often, and why?

29. Please indicate how much you agree/disagree with the following statements.

Items	Strongly Agree	Mostly Agree	Neutral	Mostly Disagree	Strongly Disagree
I like to try using the newly learned words or expressions in my writing or speaking	☐	☐	☐	☐	☐
I don't think I need to look up for every new words in an article as long as I can understand the main ideas	☐	☐	☐	☐	☐

30. Please rate the following English learning activities from the easiest (1) to the most difficult (5). Click on the little arrow and pick a number from the drop-down menu for each item.

☐ Vocabulary ☐ Grammar ☐ Listening ☐ Writing ☐ Speaking

31. **Your Student ID Number:**

32. Your gender: ☐Female ☐ Male

33. Your College:

34. Your permanent residential place before you came to this university:

35. Is there anything you would like to do for your English study but you can't? If so, what are they? Please write them down in the box below.

Many Thanks for Filling in the Questionnaire!

If you have any enquiries or suggestions
please contact us by E-mail: nceonline@163.com; Yuhua.Hu@education.ed.ac.uk